October 1988

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AMSTRAD Computer User



The official magazine for all users of the Amstrad CPC series

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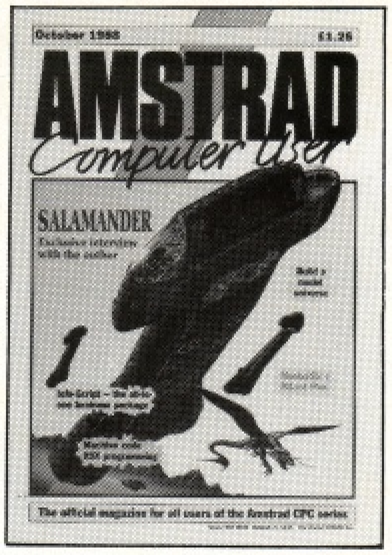
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AMSTRAD Computer User

The official magazine for Amstrad CPC users

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October 1988



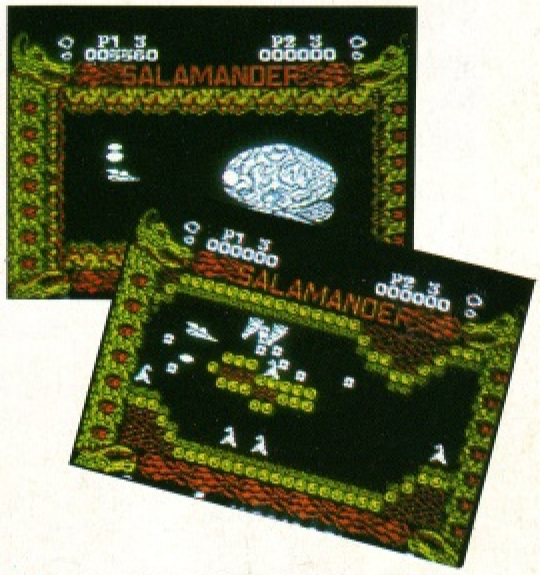
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Will the Olympics come to Manchester?

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Driving? G–MEX is in the city centre – only one mile from the M602 – with ample parking available. It is also within easy reach of Victoria and Piccadilly railway stations, and Chorlton Street bus station.

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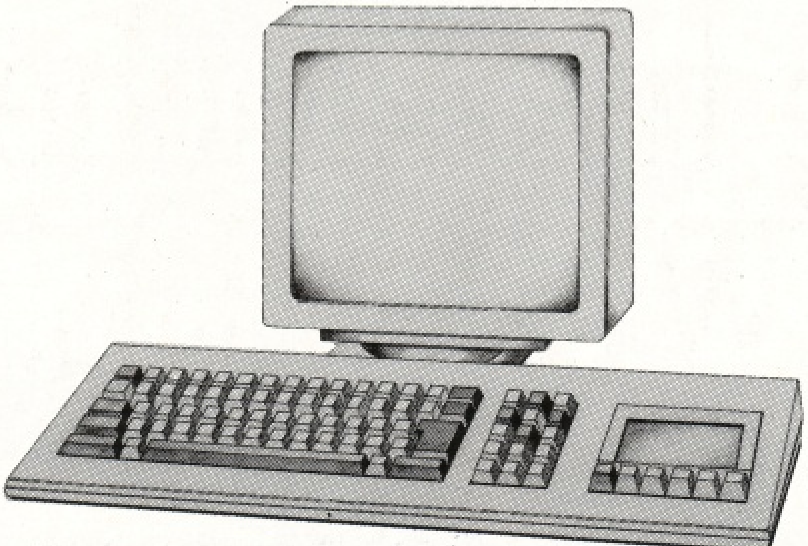
Amstrad signs deal with IBM

AMSTRAD and IBM have signed a deal for the exchange of patents. It grants Amstrad a worldwide non-exclusive licence under all of IBM's patents for the manufacture and sale of personal computer products, including those pertinent to IBM personal computers and the IBM PS/2.

The agreement also gives IBM worldwide non-exclusive rights to all Amstrad products.

The obvious conclusion is that Amstrad can use the microchannel architecture which makes the IBM PS/2 so special. But it also gives Amstrad the chance to move into the Electronic Point of Sale market (EPOS). Amstrad could, if it wanted to, start making things like cash registers.

What IBM gets in return is less clear. Amstrad would have to inform IBM which patents it intended to take up – which gives IBM prior notice of Amstrad's plans.



IBM could build Amstrad CPCs. It is unlikely that they will want to, but our artist's impression shows what such a device could look like.

It is nice to see that Amstrad, despite being Europe's number one micro manufacturer and still little known in the US, is taken seriously by IBM, a company which spends more on research and development each month than Amstrad makes in a year.

Don't expect to see IBM CPCs or programmer videos too soon. IBM may have picked up the rights to a dozen or so patents, but Amstrad has access to thousands of IBM patents.

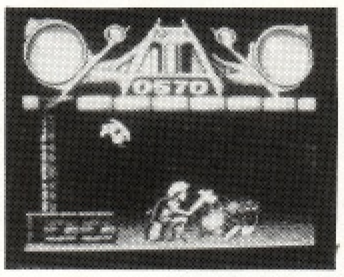
Quite a victory for Alan Sugar and his legal team.

Probe stunner

THE extraordinary screen shots on the right show the first level from Savage, the game mentioned in the Probe article (*ACU* August) when it was called The Roman Games.

The name may keep a-changing, but the software stays stunning. The game will be sold by Firebird, and from what we've seen, we can't wait.

Savage is being written by Dave Perry, who was responsible for Trantor and Beyond The Ice Palace. It will have three distinct levels. The first one, shown here, features a Trantor-like man running across a smooth scrolling screen. Captions pop up and read "Be careful", "Energy" and "Nearly there".





Your man can pick up a wide variety of weapons – a spinning mace, an axe, lasers and a protective ball.

A snake – not unlike the one at the end of the first level in Ice Palace – loops around to attack. Shoot it from in front to kill it or from behind to generate extra weapons.

One scene has the hero jumping over spectacular flames, landing on stepping stones that sink on to the fire if you hang about.

Level two looks even more stunning, in a 3D Buck Rogers or Space Harrier kind of way.

The landscape scrolls as you look out of your cockpit. Huge totem poles fly towards you, small ones in the background grow to become detailed towers as they near.

When we told Fergus from Probe how impressed we were, he said "Ah, but you saw the *old* version. It is much better now".

Level three is still under development. It will feature a bird looking down on a landscape that scrolls in eight directions.

Pepsi challenges Europe

PEPSI has joined up with US Gold to produce a series of Pepsi Challenge computer games. Together they will be throwing down the gauntlet to millions of computer games fans throughout Europe and the UK.

Inside each of the games in this new range will be a token stating a score set by the gametesters. If you can beat it, you will qualify to take part in the Pepsi Challenge – a free prize draw in which you stand to win any one of a number of superb gifts.

The Pepsi Challenge games will be released before Christmas.

Good morning, judge

A MIDLANDS firm of solicitors, Goodger Auden, has published a booklet entitled Computer Law. It outlines the various legal problems that can affect programmers, software houses, hardware manufacturers, distributors, agents and end-users.

Robert Bond, a partner in Goodger Auden, told *ACU*: "We have produced this booklet to make the layman aware of the implications of the relevant laws and regulations. In many cases the problems that arise out of computer law require swift reaction".

Copies of the 10-page booklet can be had free of charge from Goodger Auden, 2/3 Lichfield Street, Burton-on-Trent, DE14 3RB (Tel 0283 44323).

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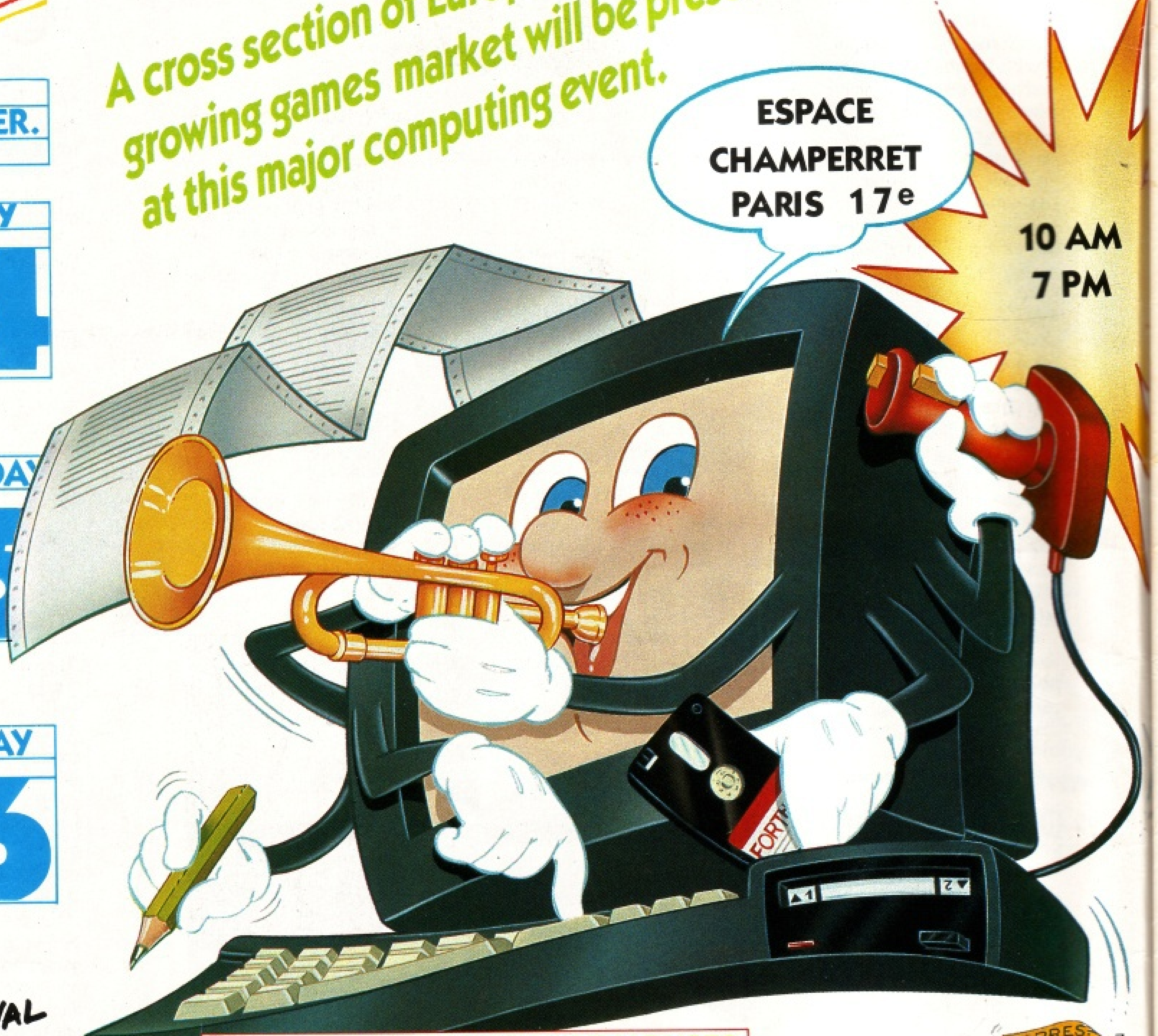
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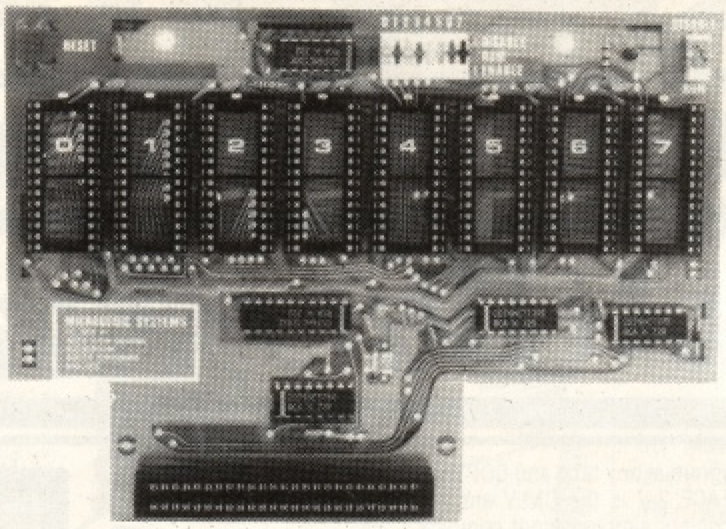
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New rom board for Arnold



MICROGENIC Systems has built a new rom board for the CPC. The Advanced Eprom Expansion Board comes without a case and features a hardware reset switch, a bank of eight switches to turn any particular rom on or off, plus a run/disable switch which can be used at any time to make the board invisible to the computer.

Microgenic Systems has had many years experience designing industrial electronic systems and computers. This work included using such devices as incircuit emulators for a variety of microprocessors in real-time systems programmed at assembly level.

The Rotherham-based company is now trying to bring these high standards of engineering workmanship to the domestic marketplace.

The Eprom Expansion Board is Microgenic's first product to be released on to the domestic market.

Mr I.Hibbert, development engineer for Microgenic Systems, told *ACU*: "We are also well advanced with the design and development of an eprom programmer. It has the same flow through connector concept as our Eprom Expansion Board and can be rigidly attached to it.

"The eprom programmer will exploit certain advanced features that, to the best of our knowledge, are not implemented on any other similar product".

The Eprom Expansion Board costs £29.95 and comes with two self adhesive feet that 464 owners can attach to the underside of the disc drive interface to give additional stability. Look out for a review in *ACU* soon.

Further details from Microgenic Systems on 0709 829441.

New release roundup

● **Gamebusters**, the new budget label from Cascade, is to release Traz on the CPC. Priced at £2.99, it features 64 levels of laser bats, plasma bombs and mystery pills.

And if you get bored with the pre-set screens you can design your own with the world's first Breakout Construction Kit.

● **Roadblasters** is the new coin-op conversion from US Gold. Set in the distant future, it has you behind the wheel of an armoured, high performance car.

Half road race and half battle, Roadblasters erupts into a final conflict between good and evil as you twist and turn through ever-changing scenery.

● Elite Systems' budget label, Encore, is doing well; it claimed 4.5 per cent of the market in its first month. Following the release of Frank Bruno's Boxing and Airwolf, Encore plans six further £1.99 releases in the run up to Christmas including **Saboteur, Bombjack Ghosts 'n'Goblins, Commando** and **1942**.



● Ingrid Bottomlow is back, horrifying the inhabitants of Little Moaning in the satirical adventure sequel to Level 9's successful **Gnome Ranger**.

Jasper Quickbuck, lord of Ridley's Manor, plans to steamroll this quiet corner of the gnome belt for a Yuppie Homes development. Only accident-prone Ingrid can stop him.

Ingrid's Back, a three part graphical adventure on disc, will cost £14.95.

● Accolade Inc. has announced the CPC release of **The Train: Escape to Normandy.** The game is set in France in 1944 and simulates the feel of driving a train. You take the role of French resistance leader Pierre Le Feu, whose mission is to seize an armoured train and drive it through enemy lines to safety at Riviere in Normandy.

Out now priced £8.95 tape, £14.95 disc.

● Hewson's latest is **Netherworld**, an underworld shoot 'em up written by Jukka Tapanimaki from Finland.

Diamonds are the key which will open the door to your escape. To get these precious items you must kill demonic dragons, marauding mines, skin-searing acid bubbles and the ghastly tormented souls that float in infinity (who writes this stuff?).

The generators – bringers of life, givers of death – exude aliens of every imaginable description. In the shops round about now at £9.99 tape, £14.99 disc.

● Virgin Games is to release **Action Force**, a smoothly scrolling graphical adventure in which you take the part of Wild Bill, the controller of a Dragonfly helicopter.

Action Force was originally coded last year by the famous Gang of Five; the CPC conversion has been programmed by Sean Cross with graphics by Ian Mathias and Alex Martin.

Should be in the shops by the time you read this at £8.95 on tape and a little bit more on disc.

GALLUP *Software* CHART

TM	LM	Title	Company	Price	MS
1	NE	Football Manager 2	Addictive	£9.99	100
2	5	Ace	Cascade	£2.99	90
3	4	Yogi Bear	Alternative	£1.99	85
4	NE	Air Wolf	Encore	£1.99	84
5	NE	Beach Buggy Simulator	Silverbird	£1.99	78
6	1	Steve Davis Snooker	Blue Ribbon	£1.99	77
7	NE	Frank Bruno Boxing	Encore	£1.99	70
8	NE	Rally Driver	Alternative	£1.99	62
9	3	Fruit Machine Simulator	Code Masters	£1.99	58
10	2	Super Stuntman	Code Masters	£1.99	55
11	NE	European 5-a-side	Silverbird	£1.99	54
12	14	Aliens	Mastertronic	£1.99	54
13	NE	Rocky Horror Show	Alternative	£1.99	53
14	10	Ghostbusters	Mastertronic	£1.99	50
15	NE	Sam Fox Strip Poker	React	£1.99	49
16	12	Out Run	Sega US Gold	£9.99	48
17	7	We are the Champions	Ocean	£9.99	46
18	9	Way of the Exploding Fist	Mastertronic	£1.99	46
19	8	Ninja Scooter Simulator	Silverbird	£1.99	45
20	15	Trap Door	Alternative	£1.99	43

Pacific transformation

WE are planning to go to the Philippines for a holiday and I want to take my keyboard with me. My questions are:

a) Is it possible for me to buy a transformer? Philippine electricity is 220v AC.

b) Would a MP-1 modulator be suitable to use on a TV set in the Philippines?

Miss R E Clark,
Aldeburgh, Suffolk.

LD: Philippine TV is NTSC. Neither the MP-1 modulator nor the MP-2 modulator will work with this system. Sorry. Hope I haven't spoiled your holiday. I'll be your keyboard. Beep beep.

1987 where are you?

I READ in the excellent feature Rim Writer (July 1988) that in the June 1987 issue there is an article showing you how to scroll the screen. Great, I thought, I'll have to order that back issue. I turn to the special offers at the back only to find that it is impossible to buy any of the 1987 back issues. Why is this?

Daniel Thomas,
Chirnside, Berwickshire.

LD: It's because we've totally sold out of the entire 1987 volume. Well, actually, I'm told there are one or two 1987 issues still hanging about in our back issue department, so if you phone and ask (Tel 0625 879920) you might just be lucky. But you'd better be quick about it.

Socket to me

TWO questions: What is the difference between a CTM640 colour monitor and the others with a 5 volt socket on the front?

Secondly, does the Screenvision gadget that turns your monitor into a a TV make the screen blur? Is it up to standard, and what do you need to run it? Do you need a TV licence for it?

Kevin Fallon,
Edinburgh.

LD: The "other" colour monitor is the CTM644. It comes with the 664 and 6128 and has an extra 12v DC socket (not 5v) to provide power to run the built-in disc drive.

The Screenvision TV Tuner works fine. You just plug it into your monitor via the RGB socket and stick an aerial in the back of it. An outdoor aerial gives a better picture than an indoor one. The licence you have for the colour TV in your front room will cover the Screenvision TV Tuner as well.

Shall I, shan't I?

I WOULD be ever so grateful if you could tell me the best sort of adventure game to start with. Before we had a CPC our family had tried D&D



but got rather frustrated with character generation, multi-zillion sided dice and heated arguments.

Armed with a GAC I ventured forth into adventure writing. The problem is, I've got no yardstick to see if my puzzles are in keeping with commercially produced games. On my very mediocre income I'm afraid to experiment by buying the wrong type of adventure.

Roy Watkins,
Llanelli.

LD: GAC adventures are still being marketed by companies such as Mastertronic, Alternative and CRL. The standard isn't particularly high, but then nor are the £1.99 budget prices.

Bill Brock reviews two or three adventures every month, including budget ones written using GAC. Read the reviews and decide for yourself which are worth buying. As a rough guide, the more expensive the adventure, the larger and more complicated it will be.

Tic Tac crash

I HAVE written before about being unable to make your Basic and machine code programs work. I spent six hours typing in Treasure Hunt and the Noughts and Crosses game. Is it me, or is it me?

R Bucks,
Warminster.

LD: It's you. Both listings were published correctly except for a small error in the Treasure Hunt machine code poker routine that won't cause the program to crash if the rest of the program is typed in correctly. Change the last expression in line 2210 to read ln=2310.

Pip problems

I HAVE a DDI-1. I've been trying to make a copy of my Masterfile II disc as recommended. Absolutely no joy. Even tried the PIP A=:** from the May newsletter. I get a message back *Drive A: Disc is write protected.* On cancelling I get *Bdos Err on A: Bad Sector.* I'm still working on it, but if you have any ideas I would appreciate it if you could pass them on.

George Chatfield,
Taunton.

LD: The command you tried – PIP A:=*.* – will copy all files on the disc in drive A to the same disc – a bit of a pointless operation. Luckily the write protect tab on your Masterfile disc was down, hence the first error message.

The second error message appeared because your Masterfile disc is data formatted. CP/M 2.2 doesn't like data formatted discs very much.

You should have a program on your CP/M 2.2 master disc called DISCKIT2 or DISCCOPY. Boot up CP/M and type DISCKIT2 or DISCCOPY when the A> prompt appears. Follow the on-screen instructions to copy a disc.

6128 turn off

DOES anyone out there know how to turn off my 6128's disc drive, because I cannot load Paperboy, Nemesis and a few others?

Vincent Lahiff,
Mungret, Eire.

LD: OK. One program to disable the built-in disc drive on the 664 and 6128, compliments of Cliff Lawson (he works for Amstrad, you know). Make sure you save this Basic program before you run it because the machine code in the data statements is not checksummed.

```
100 FOR a=0 TO 56:READ b$
110 b=VAL("&"+b$):POKE &8000+a,b
120 NEXT:CALL &8000
130 DATA cd,c8,bc,7a,b3,20,05,06
140 DATA 00,11,06,c0,ed,53,3c,80
150 DATA ed,43,3e,80,21,1c,80,0e
160 DATA fc,cd,16,bd,2a,3c,80,ed
170 DATA 4b,3e,80,48,3e,c9,32,cb
180 DATA bc,22,39,80,79,32,3b,80
190 DATA 11,40,00,21,ff,ab,df,39
200 DATA 80
```

Down in the dumps

I HAVE recently bought a printer. It was sold to me as an MP 135, but the supplier informed me that it is made by Shinwa, model no. CP-80.

This meant that I had to re-read all my back

Send your letters to:
Lance Davis
Letters Editor
Amstrad Computer User
169 Kings Road, Brentwood
Essex CM14 4EF

issues of *ACU* to pick out any of the printer and word processor articles that I had passed over at first reading. (Not having a printer meant they were of no interest to me at the time. Why do I have to find out that the Shinwa CP-80 is "infamous" almost immediately after I bought one?)

While going through the back issues I spied a small snippet in a part of an advert for Utilities Unlimited. This is one of the *ACU* discs containing, among other things, Epson Dump. Will this program work with my printer? And, if so, which issue is it listed in? Can I include it in my own programs?

L W Klimaszewski,
Wrexham.

LD: The screen dump utility on Utilities Unlimited will not work with your printer. But we published another screen dump back in January 1986 for which we have a patch *(thank you, Joe Jackson)* that will enable it to work with a Shinwa CP-80.

If you acquire a copy of said January 1986 issue and adjust the listing on page 22 as follows, I'm sure you'll be more than happy with the results.

```
5410 DATA fac9212d82cd6b81,1100
5690 DATA 0e0f014000034c20,205
```

Late lunch

I FOUND Professional Lawnmower Simulator generally very playable once I had ironed out all my typing errors – not easy when (a) errors are displayed white on white and (b) you cannot re-run the program as several things are defined early on, meaning that you have to save, reset, load and try again. Very tedious if you are not sure that the change will work or not.

I have altered line 1660, as I felt it was wrong that, having completed my first ever game in the remarkable time of 47 hrs 37 mins, I was told – to my amazement – that lunch was ready. My best time so far is 1 hr 7 mins.

John Allard,
Wellesbourne.

LD: Hopefully ACU Proofreader is now helping you to spot your typing errors before you come to run listings for the first time.

Wops solution

IN your July issue you reviewed Wops and said that "there may be problems, however, using the Disc Copier on a 6128 with two disc drives". I have such a set-up and would like to advise your readers that there is no problem, provided that the extra memory is not used.

In its current advert Camel Micros states that every tenth mail order gets Wops absolutely free. I can vouch for this as I was one of the lucky ones.

Chris Whiting,
Croydon.

LD: This "won't copy" feature is one that Camel can't reproduce on its own machines. If anyone else is experiencing difficulties copying discs with Wops on a dual drive 6128 set-up, please contact Camel as they are eager to sort this problem out (Tel 0392 211892).

The latest version of Wops has the ability to hold itself in the extra ram – a sort of pseudo rom – meaning it can now re-boot itself without having to replace the master disc in Drive A. John Keneally of Camel Micros says that plans are afoot to put the Wops system, plus a whole lot more, on to rom in the near future.

Cover story

FROM my first sight of the August cover I have been wondering where I had seen the drawing of that fast moving nasty before. I seem to recall that there was a competition some time ago on the TV – either on Blue Peter or some other such program – for child viewers to send in their pictures for an eventual winner. Am I correct?

M Fryatt,
York.

LD: Nope. That magnificent piece of artwork was drawn by Tim White, the famous fantasy artist, in 1978. It was originally the cover of a novel by James H.Schmit called The Lion Game.

I love Auntie John

DEAR Auntie John, my girlfriend keeps telling me I'm too ... sorry, wrong Auntie. Start again.

A great idea to find out if anyone is reading what you write is to make a mistake and invite requests for the correction. I hope this is a one-off, as yours is quite the best introduction to machine code I've seen since I started looking in 1985. All the books and articles I've studied – zilch; but I really feel I'm understanding now. Love,

Peter Daniels,
Worthing.

I hate Auntie John

ONE register short of a CPU is ravin' right, pal! I refer of course to Auntie John's new machine code series which is – how can I put this politely – dreadful.

For a start, I would like to know who it is aimed at. The explanation of registers and opcodes is too sketchy and incomplete for the beginner, and wasted on anybody who knows anything about the subject.

He moves on to explain what you can do with registers – a fairly logical next step – but, again, the four things he mentions are far too imprecise.

He recommends that the serious machine coder buy himself a decent assembler. Might I enquire what constitutes a "decent assembler"? I presume he means the one he is using.

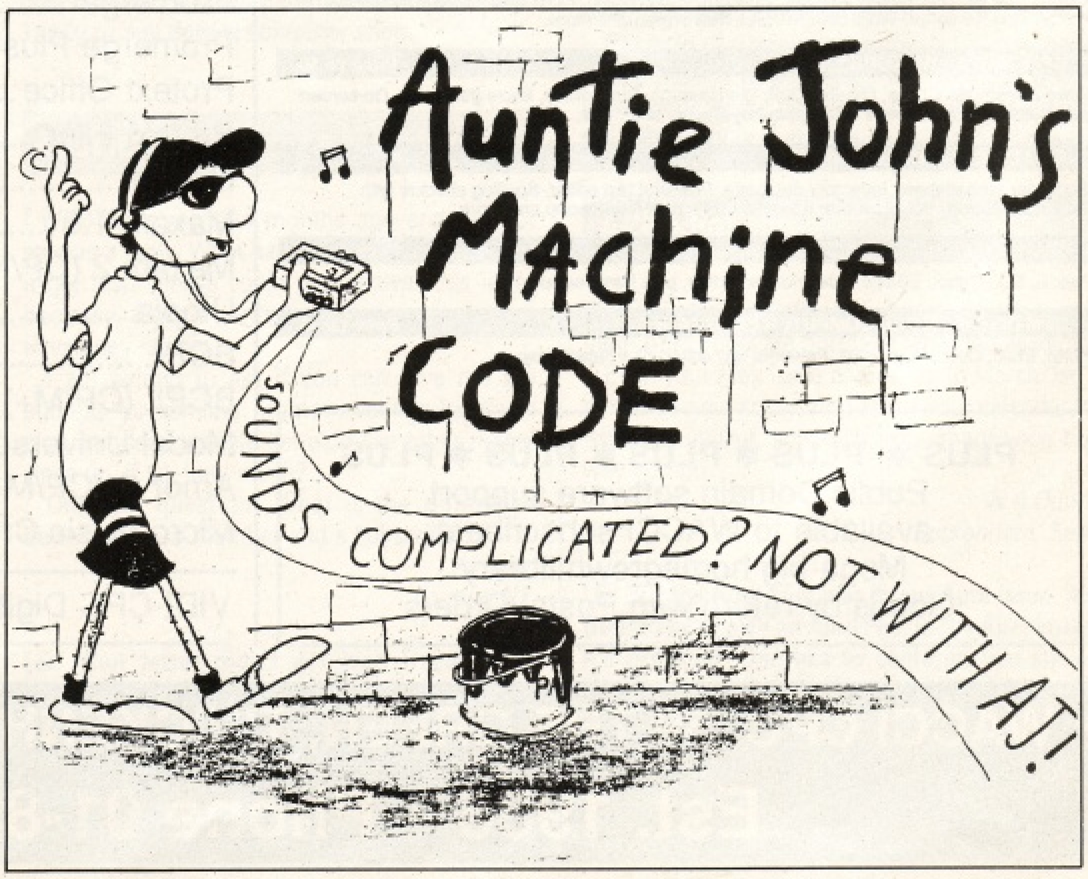
Looking at the listings themselves, there are a great many instructions that aren't properly explained. And then there is the wonderful Exploding Cooker Trick. Very amusing, Auntie John, especially for people like me who like to sneer at those less knowledgeable than themselves. It would be more helpful if these little timeouts were replaced with something more relevant to the subject in hand.

Overall this was a pretty appalling start to a series which purports to teach machine code to beginners.

Steven Pemberton,
Blackpool.

Hello, hello

I HAVE designed and built an expansion to my computer. It consists of two 8k ram chips which are mapped into the system as rom 3. To write to the ram I push a switch so that when rom 3 is



active it maps into the screen memory.

The write routine and the board work OK, but when I switch the computer on – or reset it – the title of the rom is displayed twice, even though it is only programmed to display once. Can you help me?

J W Whitfield,
Gainsborough, Lincs.

LD: I think it is a board problem, but can't say for sure without seeing a circuit diagram. The CPC has a very loose decoding arrangement. It could be finding your rom twice. Or it could be something to do with the use – or lack of use – of data line D3.

Writing pokes

I am a great fan of *ACU*. I especially like the Hairy Hacker's section. Justin – whoever he is – seems to be very good at writing pokes. I was wondering how people set about writing a poke. I would love to be able to write my own. Could you tell me what to do?

D Trenchard,
Middlesborough.

LD: To write good pokes you need to know a bit about machine code. You need to find the part of the program where the initial program variables are stored.

This is a simplification, but to get lots of lives you would have to look for the machine code equivalent of "lives=5" and change it to "lives=255". Learn machine code, and you'll learn how to write pokes.

Channel tuner

I AM seriously contemplating buying an MP-2 colour TV modulator in connection with my 14in multi-standard Redson TV. This set is operable on all the UK and West European TV systems – French TV is receivable in this part of the UK – incorporating automatic switching of both the PAL and Secam colour systems. On this TV is a video switch which I use regularly with my VCR via the scart socket, thus by-passing the TV tuner.

Can you please let me know if I need to buy a special cable to connect from the MP-2 to the TV's scart socket, thereby avoiding having to use channel 36, which is the normal video channel?

David Moller,
Eastbourne.

LD: The MP-2 is tuned to channel 36. The scart socket will not understand the signals the MP-2 is sending out.

Line noise

I AM the owner of a 464 to which I have added a rom board, printer and disc drive. I have now decided to buy a modem. As my knowledge of modems is somewhat limited, I would be grateful if you could answer the following questions:

Is the software required available on rom? If so, what is the best interface to buy? How can I persuade my wife that a modem is an essential requirement for all home computer systems?

Colin Graham,
Selkirk.

LD: I could think of a few ways to persuade your wife that a modem is a good thing – shopping by phone, hairdresser appointments by phone, cookery databases – but I'll get accused of being sexist, so I won't go into that.

The Amstrad RS232 is the most popular interface. It comes with built- in CommStar software on rom and is all you need apart from a modem and lead. The Cage comms software also comes on rom, and is reputed to be much better than the CommStar viewdata software that comes with the Amstrad interface.

My fashion sources tell me that at this time of year well dressed comms freaks use the Cage for viewdata and a public domain program called Mex for scrolling boards, keeping the CommStar sox (bit of jargon there) for backup.

Tape drive

I HOPE you can put a few couple of things straight for me. Is the Official Amstrad User Club open to the Republic of Ireland and can I add on a tape drive to my 6128?

Charlie Fearon,
Dundalk, Eire.

LD: Sorry, Charlie, the User Club inform me that Irish Amsters cannot join. But you can subscribe to *ACU* if you like. See the order form at the rear of this issue.

You can add a tape drive to your 6128 by buying an ordinary mono cassette deck that has a REMote socket. Plug it into the socket marked Tape on the left hand side of your computer. The lead is readily available from shops like Dixons, Tandy or any decent computer shop.

Lost letter

I WROTE to you two months ago and did not receive a reply. What happened to my letter? Did it get lost? Please could you answer this letter because I am running out of stamps and envelopes rapidly.

I am writing to ask if you can give me the address for sending program listings to you. I also wonder if people get paid like other magazines do. If so, how much?

One last question: What is the difference between a club member and a subscriber?

Vy Tran,
London N2.

LD: Your letter didn't get lost. I remember reading it. But there is only so much space in *ACU* for me to answer letters, so every month my pile of unanswered letters grows. Persistence usually pays off.

The address to send listings to is Liz Ting, Amstrad Computer User, 169 Kings Road, Brentwood, Essex, CM14 4EF. If your listing is published you will be paid loadsamoney.

Members of the Official Amstrad Users Club who own CPCs receive *ACU* as part and parcel of their membership deal. The club is not run by *ACU*. The club is not owned by *ACU*. The club newsletter is not written by the staff of *ACU*. The club sells our magazines for us, just like a newsagent does. Subscribers are paying us for 12 issues of ACU in advance. That way they get to read the magazine a week before it hits the shops.

Jump to it

I am very interested in machine code programming. Please bring back the series on machine code for beginners, and keep up the Auntie John series.

I bought the Soft 968 and am finding it very confusing. Why, for example, have a jumpblock of 200 or so three-byte instructions? Every third byte is a jump instruction; couldn't the call instruction read the two relevant address bytes and then jump to the routine pointed to by these bytes instead of jumping to a location and then jumping again to the routine?

Richard Devlin,
Shaws Lane, NI.

LD: Sorry Richard, I've had to limit you to one point. Two-page letters packed with questions and arguments get a little confusing.

The machine code "call" instruction is always followed by two data bytes – the address to call. When it gets to that address it executes whatever instructions it finds there. So if you need to jump elsewhere, you need a jump instruction.

Machine code isn't like Basic, you can't have single instructions that carry out multiple operations. One instruction, one operation – that is what machine code is all about.

Get hold of a book that shows you how these instructions and addresses are shunted about the various buses inside the CPU. Programming the Z80, by Zaks, is the kiddie, but it's not cheap.

ACU idiot slur

PEOPLE who play jokes in February and then call them April Fools are normally regarded as idiots.

Even your May issue comes out in March. Isn't it time you did something about your calendar or whatever makes you date your magazines the way you do.

N.A.Dunn,
Beckenham, Kent

LD: But the April Fool was in our April issue. It's traditional to play an April Fool in the April issue. It's expected. One has to conform, you know, else the men in white coats come and drag you away.

The reason we publish magazines way ahead

of their cover date is so we can all take three months off in the summer to go wind surfing or some other glamorous sport.

In the winter we take another three months off to go skiing. Oh yes, and there's a week for Royal Ascot, two weeks for Wimbledon, and the entire grouse season.

Young flasher

COULD you please tell me if there are any programs for my 464 to make a light flash on and off, plus would it be easy to connect the light to my computer?

Glenn Smith (age 11), Ivybridge, Devon.

LD: I don't know of any such program. To connect the light would involve building the necessary hardware. A micro electronics expert would find it easy, I suspect you'd find it fairly difficult.

Just pathetic

RECENTLY I bought another computer magazine which cost £1.50. Although it was 25p dearer it had 132 pages, which is 64 more than some of your issues. There is also much more colour in it and page after page is not wasted with programming. They also give things away free; once a diary was given. This is more than can be said of *ACU*.

Altogether your magazine is just pathetic with stupid cartoons all over the place wasting space. If I didn't have a subscription I would most certainly never buy ACU.

Please try and make your magazine better. I think 64 pages for 25p is pretty good, don't you?

P.Johnston, Glasgow

LD: I've done some research here. On average, the magazine you mention – the one that gave away the diary – prints the word "Amstrad" on about 26 pages, including adverts, every month. Put all these pieces together into one magazine and you'd have about 10 to 12 full pages. That works out to around 13p per page.

At that rate I think 68 pages for £1.25 is pretty good, don't you?

Big disc trouble

I SEEK information on adding a 5.25 second disc drive to a CPC 6128. I have the supply and a lead. When I switch on the motor spins and only half the signing on message appears – Basic 1:1 and Ready are missing.

When I unplugged the drive the Basic 1.1 and Ready appeared. I plugged the drive back in and tried to access it by 1B. The computer does not even try to read the disc but puts up the error message, Drive B disc missing, retry, ignore or cancel.

I understand a 5 1/4 second drive can be fitted, but the edge connectors on the computer and disc drive must be different. Can anyone tell me what the edge connector pins on a double sided, low density, 40 track drive are?

**David Ryall,
50 Applegarth
Fieldway
New Addington
Croydon, Surrey**

How do I expand?

FOR months now I've been trying to find out how to use the expansion port on my 6128. I've tried everything to gain information. I've been to every computer shop in Bristol, every library, even to other nearby towns, but with no luck.

I've bought a couple if big scientific books on the 6128 but they innocently evade the subject.

Jonathan Webb, Bristol.

LD: To drive your expansion port you're going to have to know quite a bit about machine code programming. You will need to know about addressing ports and stuff like that, and I know just the book you need. Understanding and Expanding your Amstrad CPC 464/664/6128 by Alan Trevennor is published by Sigma Press at £8.95. It is an excellent book.

Write to Sigma Press at 5 Alton Road, Wilmslow, Cheshire, SK9 5DY and ask them to send you their latest catalogue.

If you're not a machine code programmer, then you'd better get hold of the CPC firmware guide as well (Soft 968). The User Club can help you there on 091-510 8787.

Father Brun

BILL Tomlins' review of BrunWord wasn't very fair. I have used this for over six months now and find it very easy to use, and versatile too.

He said he has used it for some time, but not long enough to get used to the editing and function keys, as he moans about them. I have used two other word processors, and both use similar systems.

Deleting, which he mentions twice, couldn't be easier or more efficient. And yes, you can delete a line, or part of one, or a block. You simply fix the two markers and delete.

Complex layouts are simple, too. Once you have set your main margins you can indent or create temporary margins.

The ram disc is also very useful for editing because you can store the parts of the text temporarily and call them at will. Or you can have related documents there with their own margins and page lengths set.

The built-in dictionary is quick and efficient for correction of a document or looking up a word as you go along. My version loads along with the program – the whole lot in under 12 seconds, which is quite amazing.

It took me some time to realise and use the full potential of BrunWord, but that's true of most serious, well designed, flexible software. I like it, and I'm sure that others would agree that it is an excellent word processor that has powerful features at a very reasonable price.

Revd Steven J Abram, BD, Aldershot.

LD: Bill Tomlins is a professional freelance journalist, and the word processor is the tool of his trade. BrunWord was pushed and shoved into the serious software market where it has to be judged against some pretty heavyweight rivals. WordStar and Protext for example.

You can get used to any word processor – there are people still using the text editor in Maxam – so the fact that you like BrunWord doesn't make it a good word processor. I've used BrunWord. I found it couldn't keep up with my speed of typing. I went back to using Protext.

Mouse wanted

I HAVE recently bought the Advanced Art Studio and would like to use it with a mouse. I can only find them with their own software package included, and I don't want to pay extra for software I probably won't use.

Please could you tell me if any companies manufacture a mouse without software suitable for the CPC6128?

Dean Whiteley, Pudsey, W.Yorks.

LD: Kempston makes a mouse for the CPC. It comes with just enough software to make it work and costs £49.95. You can contact Kempston on 0908 677886.

Help PLS

WITH reference to the program listing Professional Lawnmower Simulator in the August issue, my 6128 will not accept the commands |NORMAL, |INKS or |MODES.

D Jennings, Hove, E.Sussex.

LD: The machine code from lines 180 to 990 sets up the three new commands that you are having difficulty with. If you get no checksum errors reported, and if your machine won't recognise them after running the listing, it means you have typed in one of the data lines more than once, but with a different line number. Check the data statements.

Brief encounter

Please note that you are at liberty to edit this letter to size.

*Wayscale Ltd
South Godstone, Surrey.*

LD: Sorry. Ran out of room.



A-812387 touched down without a sound. Parachute hidden safely away, he surveyed quadrant 'X' with the steely gaze of a professional killer. The task was hard, some would say impossible, but to a special operations agent the impossible was merely a way of life.

The brief had been simple, recover the vital NATO documents — and of course, those three familiar words on which A-812387 thrived . . .

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Seek and ye shall find

Delve into adventures with Bill Brock

CRL made the headlines when it had Dracula issued with a British Board of Film Censors 15 certificate. The descriptive text and digitised pictures did not appear to be that horrific, but I for one was concerned that this action may eventually force other software houses to follow suit.

This could have meant more expensive games and possibly introduced long hold ups in the release of certain programs. Fortunately this does not seem to have happened, even though CRL has subsequently released other adventures with BBFC certificates.

Dracula was followed by Frankenstein and Wolfman, all written by Rod Pike. CRL has now produced a Horror Compilation including all three. For some reason Wolfman never came my way until now. To set matters right, I have spent a few days in the depths of a nameless middle European country trying to solve its lycanthropic problems.

Hair of the dog

WOLFMAN is a three part adventure with a similar feel to the previous two tales. Like them, it is divided into discrete sets of locations whose puzzles must be solved before moving on to the next. This sometimes causes a certain amount of frustration, as you have only a few locations to explore. On the other hand, there is that feeling of satisfaction when you solve the puzzles and move on.

Despite all the publicity about the digitised graphics, they are few and far between. Most are not that imaginative and add very little to the adventure.

As with previous games in the series, the parser is not always very friendly. It is often difficult to persuade it to carry out what should be simple instructions. The vocabulary does not seem to be very extensive and some of the commands are a little awkward.

Some complex commands are required, but for the most part a simple verb and noun input will suffice. Multiple commands are not recognised. But the text is highly descriptive and atmospheric and the plot hangs together well.

For all its faults, Wolfman is a good game with puzzles of only moderate difficulty. If you have a little patience to battle with the parser you will enjoy the game. Just remember that SEARCH has a different meaning to EXAMINE – and SAVE often, as you never know when David will turn wolf with decidedly lethal results.





Cricket lovely cricket

ALTERNATIVE Software – with the help of the Dreaming Djinn, alias Charles Sharpe of Wizbiz and Smashed fame – has come up with something for frustrated cricket buffs to play during the football season.

Cricket Crazy is a two part adventure written using Incentive's Graphic Adventure Creator. Like many Charles Sharpe games, it has a novel approach to what could be an almost plausible situation.

You are the England team manager during a trip to the island of St. Malcolm. Hidden deep in the seas of the Caribbean, the island is well and truly cut off from civilisation. With abundant natural food supplies and few worries other than the occasional hurricane, the islanders have

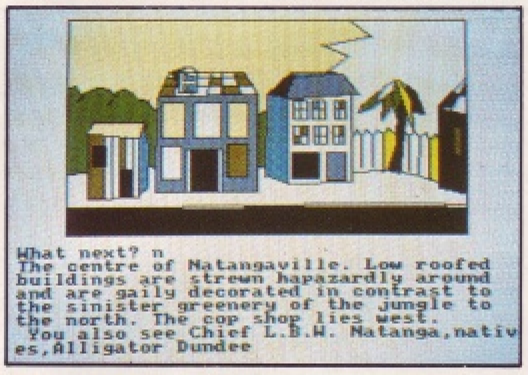


become obsessed with cricket.

Due to its small size and minimal political importance, St. Malcolm, for all its fanaticism for the game, has never managed to attract the attention of the major cricketing nations. Until, that is, the British Government realised that the island, home to millions of sea birds, was a vast natural source of guano.

Accompanying the players is Giles Amfitz, a chinless wonder from the lower echelons of the government. His task is to use the goodwill generated by the cricket tour to persuade the local officials to give us the sole rights to their extremely useful, if a bit smelly, natural resource.

The game starts with the team travelling in a



somewhat dilapidated DC-10 somewhere over the Caribbean. A stroll down the aisle will identify a few of the team members – Ram Botham, Bill Edmonds and Larry Lamb appear to be the only well known players awake at this time.

Another passenger, who is all too awake, is a shady foreigner, an employee of an Albanian fertiliser company and is trying to forestall developments by hijacking the plane to his home country. In the ensuing melee the pilot catches a bouncer and is laid senseless. You now have to show your mettle and get the team safely to their destination. Having little faith in all-rounders, Giles Amfitz grabs the only parachute and floats away leaving you to cope with the situation.

Once on terra firma, you might think your troubles are over. Not so. Decisions, decisions... a manager's job is never dull. Quicksands, cannibals, an introverted apeman and the local police all pose a few problems that you will have to solve before the big match. Do you, or don't you accept a friendly against the local youngsters? All in a day's work for some, but can you rise to the occasion?

Having solved these everyday details you may finally get to part two and the reason for the team travelling half way round the world. At the last minute, Ike Gatting is unable to take the field. Who will now captain England's finest? You have probably guessed who has to stand in and do his heroic best.

Not only must you tell Ram Botham how to bowl and the Gooch how to bat, but you must also decide on overall fielding tactics. The home team will do their darndest to win by an innings, and they have names that will bring back a few memories to followers of the noble art of the willow versus leather.

Graphics are limited but colourful and, for the text-only among you, they can be turned off. The parser is fairly standard GAC, accepting multiple commands and, on occasion, somewhat more complex inputs than just verb and noun. A reasonable vocabulary list for each part of the adventure is given on the cassette inlay, but expect to think of others for yourself.

Cricket Crazy has a lot of humour and is as whacky as previous adventures from this fertile source. It is important to EXAMINE or SEARCH all sorts of things, and you must not be put off by a large number of boringly negative responses. As low cost adventures go, it has to be good value. There is nothing seamy except the bowling.

In the classical mold

THOSE not faint of heart who want to travel back in time, take a look at Topologika's Philosopher's Quest. Years ago this was an adventure that had thousands of BBC Micro users groaning in their sleep.

You wave a magic wand in an old antique shop and transport yourself to another dimension. Then follows a classic hunt through a maze of tunnels, caves and rooms. There is treasure, but the prime purpose of your trip is to solve the excellent puzzles thoughtfully provided by writer Peter Kilworth.

The game is disc only – CPC and PCW – and has no graphics, but plenty of descriptive text. The puzzles are ingenious, if not devious, and are fairly logical.

As with many games in the classical mold, the vocabulary is not extensive and the way in which you can input commands is limited. There are good hints for those who lose their way, and as with other offerings from Topologika, they are on the whole hints, not answers. You have to interpret them for them to be useful.

The hint sheet has a list of potential areas of difficulty listed as objects and locations. Each has a number that can be typed into the computer; you then get a clue. You may be offered another on the same subject and the answers you get will be clearer the longer you persist.

There is no ram save, but saves to disc are very rapid and should be made frequently. EXAMINE is not recognised at all.

Although this may seem a strange omission it is based on the belief that the normal use of EXAMINE is as an extra puzzle, rather than as an aid to the player. It is assumed that the adventurer would automatically look at his surroundings carefully, so all relevant information is given when you enter a location.

Philosopher's Quest is a little dated in its presentation and command structure, but will give you a great deal of satisfaction in playing, and elation if you can solve it without recourse to the clues.

RATINGS

	Wolfman	Cricket Crazy	Philosopher's Quest
Plot	65	64	65
Atmosphere	66	66	67
Addiction	65	61	72
Difficulty	60	67	70
Overall	66	63	68

Coding Kidz

Christian Pennycate rests successfully on his laurels after being given just one month to convert a game to the CPC

FOR a first release, my conversion of BMX Kidz for the Spectrum hit the jackpot. There is no rest for the wicked, however, and when Colin Fuidge, the Silverbird supremo, offered me a further conversion of the game, this time for the CPC, who was I to refuse?

No sooner said than done, my trusty Mont Blanc fountain pen was whipped out faster than a 68000 on speed and was put to the dotted line.

Due to me being new to big Al's mighty machine, a little shopping was called for. The recipe chosen to develop BMX Kidz had the following ingredients: A few CPC 6128s, one Maxam assembler rom, one Advanced Art Studio and mouse, one DMP scratcher.

Bright and early one Monday morning I called a team meeting – the team being the Zeit Corporation, myself on code and Alex Smith on graphics – to sort out the specifications and draw up a timetable.

At first we thought we could download the Spectrum graphics and modify them to take advantage of Arnold's superior facilities. But although both the Spec and the CPC use 3in drives, different disc formats have been adopted. A whole day was wasted battling through the firmware manual to find an elusive address in that infamous jump block so that we could access the Plus 3's disc sectors and extract the graphics codes.

Having got that far, we then discovered how the CPC's rectangular Mode 0 pixels had stretched the graphics, giving them the appearance of having been through a mangle. So much for modification, the graphics would have to be totally redone.

"There there, Alex", I consoled him. "You'll have them done in two shakes of a mouse's tail."

We agreed on sizes and protocols for the sprites and backgrounds and Alex went away, leaving me to get on with the business of persuading the Amstrad that it, too, could ride a BMX, just like the CBM64 and the Spectrum.

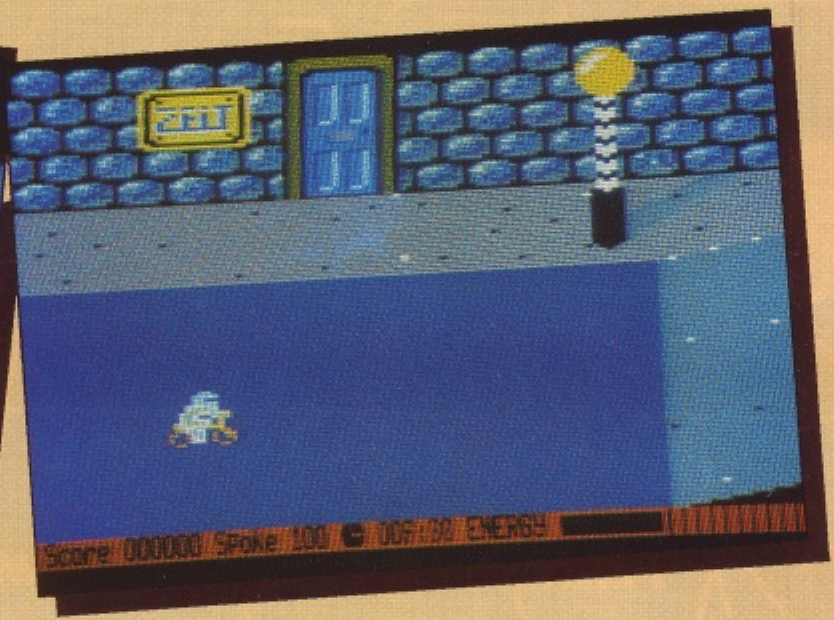
Choices

The first choice I had to make was between a hardware scrolled or a software scrolled playing area. The latter would have meant the use of a work area and kissing goodbye to half the available memory. Since the graphics alone occupied some 28k, this would have left precious little space for my code.

Hardware it had to be. I delved into the







firmware manual once more.

The answer lay in offsets, which forced me to work in a modulo 2048 environment. This not only affected the generation of background graphics but also that of sprite placement. Which brings me quite nicely to the bane of every programmer's life, the raster.

Sprites

Placing a sprite is not just a case of shoving some pixelly perfect graphic on the screen. No sireee, the background must be restored as well.

Writing directly to the screen means that all changes must take place without the raster disturbing it. Otherwise the sprites will flicker. The bikes and pickups themselves are 12 x 16 pixels in size and are managed by a stack manipulation routine. With 66,000 clock cycles available between raster interrupts, I found my sprite routine could only handle six sprites on screen without inducing flicker. And because the hardware scroll affects the whole of the screen it was also necessary to restore the score line in order to keep it stationary.

Meanwhile Alex had been busying himself with drawing the sprites. These had to be redone due to a mix-up over the palette. But he turned this setback to our advantage, and amended them to make the wheels rotate. Then he started on the backgrounds. These took about a fortnight compared with a week for the sprites.

That done, it was time to do the ramps. They were originally going to be twice as wide as they are now, but by that time memory was starting to run short, and we wouldn't want to deprive you of a front panel now, would we?

Not being one to stop a man while he's working, I let Alex get on with the job of coding up the level data – the sequence of ramps and background graphics. As they were loosely copied from the Spectrum, they only took about three days to design and debug.

Another few days were spent listening to the playtesters' comments and modifying the tracks until just four weeks and three days after signing, the day of judgement arrived.

The game

In BMX Kidz you have to race over five undulating tracks, competing against three other kidz, performing stunts and wheelies as you go. And as if that wasn't enough, the whole thing is against the clock.

Pedalling is thirsty work, and to keep your strength up you must ride through giant size cans of Jump Cola. Moreover, your wheels are not that strong and a bad landing or collision with the other kidz will cause some of your spokes to break, necessitating replacement. This is achieved by riding into larger-than-life sized wheels.

To pass on to the next level you must perform all the stunts required of you in the time allowed, and pass the finish line in first place.

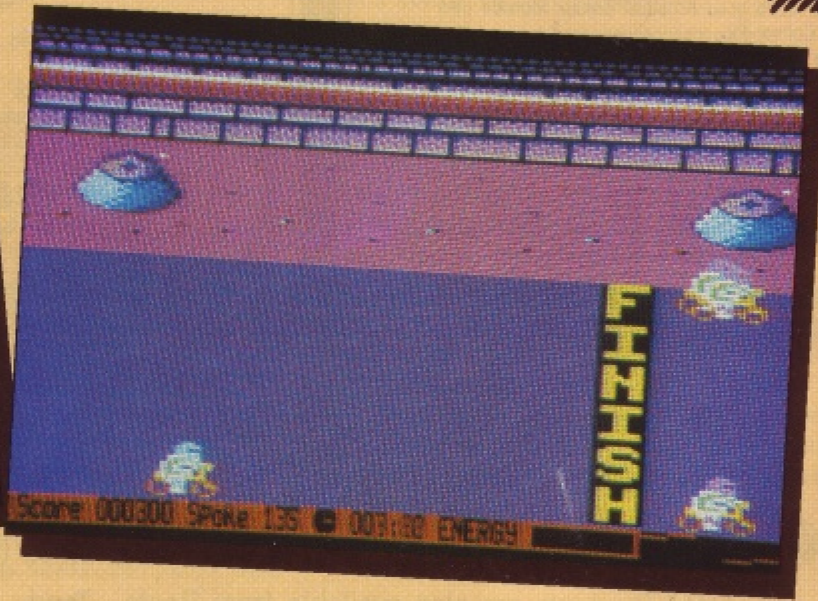
Judgement day

As I was in bed recovering from 72 hours of non-stop coding, it was left to Alex to go down to Silverbird's offices in New Oxford Street to find out what the CBM progger GI-Jo thought of it. Much to our relief he liked it and only ordered us to make a few minor alterations. That took us a couple of days and then the game was ready to go to be mastered. A few days later we learnt that the masterer couldn't master our master because it was, smiles modestly, over protected.

Sigh. There's no rest for the wicked. However I'm nothing if not wicked, and when Colin Fuidge offered me another contract, this time for a jumpy little game entitled Scuba Kidz, who was I to refuse?

BMX Kidz was programmed for the CPC by the Zeit Corporation. It will be released next year on a £1.99 compilation tape of three Silverbird budget games.





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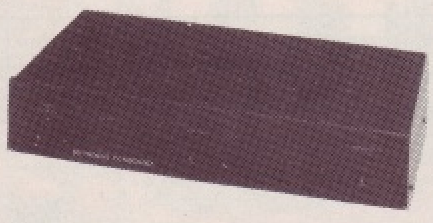
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Applications advice



David Foster finds answers to some of your problems

IN the January 1988 issue I asked whether anyone had any solutions to the the problem of the Starwatcher program only doing screen dumps when used with DMP1 printers. Simon Shaw from Kent writes that he has recently bought the program and has been doing some hacking.

He has come up with a solution that works with his Panasonic KX-P1081 printer. As the Panasonic is Epson compatible, it should also work with other Epson-compatible printers such as the DMP2000 or DMP2160.

He enclosed two dumps from the program and they seem to work well. The relatively small alterations required are shown in Figure I. Many thanks, Simon.



1. Load, but do not run the Basic file called BASICA.
2. Edit line 1800 to read:

```
1800 IF s%<>0 THEN GOSUB 28000:IF k%=8
     9 THEN ORIGIN 0,0,0,639,399,32:PO
     KE 16459,10:POKE 16460,0:POKE 426
     43,15:POKE 42644,0:POKE 42671,64:
     PRINT#8,CHR$(27)+CHR$(65+CHR$(7):
     CALL 42598:ORIGIN 0,32,0,639,287,
     32:RETURN ELSE RETURN
```

3. Resave the program.

Figure I: Procedure to make Starwatcher program work with an Epson compatible printer

The CP/M GET command

Peter Ceresole has written to me before about having problems with page lengths in BrainStorm. As a result of using the CP/M SID program to solve the problem, he has started to experiment with CP/M and its multitude of utility programs.

He has a copy of CP/M The Software Bus, but finds this book even more unfriendly than the dreaded A> prompt and wants to know if there are any friendly CP/M books.

I have to admit that I haven't come across any. One of the reasons is that CP/M is now an old operating system. In its heyday computers were expensive and largely used by professionals.

As a result, with a relatively small market, already conversant with computer systems, most of the books tended to be of the technical reference sort.

The book that I use is called The Amstrad CP/M Plus, by Clarke and Powys-Lybbe. It contains a wealth of information, both regarding the CP/M commands and for writing CP/M programs, but is largely of a technical nature again.

Peter Ceresole has also been making use of the GET command, and had a problem with it not doing what he wanted. GET can be used to tell the computer where to get input. Normally input is obtained from typing it in at the keyboard, but by using the GET command, CP/M can be told to get it from a file. If you typed:

```
GET FILE MYINPUT [SYSTEM]
```

CP/M would immediately look for the file called MYINPUT and take the contents of each line as if it had been typed in at the keyboard.

This can be extremely useful, as it can allow you to call up a program and simulate typing in the sequence of commands required to, say, load a data file and select certain default options before returning control to the keyboard once the commands in the file have been fully read.

When I use the AtLast Plus database I always want to follow the same sequence of commands to load a particular data file and then go into the

Scan option, so I have a file called ATLAST.GET containing:

```
DBUSE!MEMBER!S
```

I also have a submit file called ATLAST.SUB, containing the line:

```
GET FILE ATLAST.GET [SYSTEM]
```

When I type SUBMIT ATLAST it immediately starts reading from the file and loads DBUSE, then the data file called MEMBER, and then selects the Scan option. Simple and efficient. It will not work with all programs, though it does with most.

Peter's problem was just that he was not using the SYSTEM parameter.

Other options available with GET are the CONSOLE command, which may be used in the file that GET is reading to force output back to the keyboard, and also ECHO and NO ECHO. The default is ECHO meaning that commands are displayed on screen unless the NO ECHO command is issued.

DR Logo

H.Counsell of Rochdale has been experimenting with DR Logo and finds that he cannot get a screen dump of any pictures he has drawn. I fear that I have never found the time to use Logo, although I do remember reading somewhere about the problem with getting hard copy screen dumps. I know you can get text printouts with no problem, but has anyone got the answer to how to do a graphics dump, please?

GAC and roms

Ruth Sard writes from Southern Australia with a number of queries. First of all she wants to know which rom software might cause her machine to crash.

Good quality rom software should not cause any problems with crashing at all. The worst that should happen is that you might need to turn off any extra roms to run some memory-hungry programs. Most roms provide a command to turn themselves, and often other roms, off.

Unfortunately, one or two not very intelligent programs perform a sort of soft reset in their loading process, and in doing so turn the roms back on again. In these cases the only solution is to physically disable the roms, normally by disconnecting them.

Ruth's second question is whether she can make use of the dk'tronics expanded memory to enable her to write larger adventures with less trouble. Sorry. Unless programs make provision for using banked ram, there is little you can do to make use of it.

The third question concerns using user defined characters within GAC. While Ruth can define, load and use characters in normal circumstances, she finds that once she has loaded GAC they are no longer available. Alex Aird of Birmingham has sent in a solution to this one. See Listing I.

Alex says that the problem with GAC games is that they can only be RUN from Basic. What needs to be done is to LOAD then CALL a GAC game. This has to be done using machine code.

The disc system is initialised by GAC and claims a chunk of memory for its own use from &A2FC to &A7FF. So effectively HIMEM is at &A2FB, much lower than the normal &A619 – on the 6128 – at switch-on.

These addresses all change if a rom box is fitted, so it might be advisable to lower HIMEM even more to allow for the possibility of expansion roms.

In line 1050 of Listing I, the number 8 is the length of the filename. If your adventure has a shorter name change the number to suit. If you do change it, don't forget to also change the number of bytes being read in line 1010. Don't use names longer than eight characters even if you are writing on a 464.

If your GAC adventure is to be loaded from tape then change the 8 in line 1010 to a zero and forget about line 1090 which is the name itself in Hexadecimal form. The name Alex has put there is "FILENAME" (&46=F, &49=I, and so on). All you have to do now is design a character set.

```
10 GOSUB 1010
15 '
20 SYMBOL AFTER 32  'or whatever
30 SYMBOL 32,0,60,70,74,128,164,120,0
40 SYMBOL .... etc
50 SYMBOL .... etc
999 '
1000 CALL &BF00
1005 '
1010 FOR addr=&BF00 TO &BF00+29
1020 READ b$
1030 POKE addr,VAL("&"+b$)
1040 NEXT:RETURN
1045 '
1050 DATA 06,08
1060 DATA 21,17,bf,11,00,a8,cd,77
1070 DATA bc,21,40,00,cd,83,bc,cd
1080 DATA 8f,bc,c3,2c,1f
1090 DATA 46,49,4c,45,4e,41,4d,45
```

Listing I: Skeleton GAC adventure loader that allows character sets to be user-defined

Pascal chip for 6128

Andri Pavlov of Ilford is writing a program in Pascal for her GCSE final exams. Unfortunately she only has access to the school computers at certain times and wants to know where she can buy a Pascal chip for her 6128.

Only one rom is available that claims to be Pascal, but this is only a very small subset of a Pascal-type language. It has no facilities for using Ascii text files and will only work with its own primitive editor, so I would certainly not recommend it.

The solution is to get Pascal on disc. Several versions are available ranging from HiSoft Pascal – which is a little non-standard in some respects – to Turbo Pascal from Borland.

Expanding memory

Rolf Nordeide from Norway wants to know whether he will be able to access all the extra memory from within Tasword 6128 if he buys a 256k memory expansion unit. The answer is no, only the first bank of 64k of memory will be accessible. There is no easy way to change the situation.

J.Banks of Aberdeen has a disc drive for his 464 and says he will need to buy a memory expansion unit if he is to be able to use certain programs. His query is whether he can just buy the 256k expansion unit, or whether he must build up to it with 64k units.

The answer is that the 256k unit does everything the 64k unit does, so if he wants 256k, then he should get it.

Having said that, not many commercial programs will make use of more than the first 64k so the advantages of the bigger unit tend to be restricted largely to use with your own programs.

Basic books

Oh dear. Peter Smith has scoured the Jarrow countryside far and wide for the two books I mentioned by Ian Sinclair, with a total lack of success. He asks for the ISBN numbers.

The book numbers are 0-00-383300-3 (Advanced Amstrad CPC6128 Computing) and 0-00-383120-3 (Amstrad Computing). Both books are published by Collins.

No time to lose

Nick McGregor of Norwich has sent me a small routine to reset the CPC's TIME function to zero from Basic. Nick points out that it is important that the Pokes be left in this order for the routine to work correctly.

```
100 PRINT
110 a=TIME:PRINT"TIME =";a
120 PRINT
130 PRINT"Press any key to reset TIME
    to zero..."
140 PRINT:CALL &BB18
150 POKE &B8B7,0 ' 464 = POKE &B18A,0
160 POKE &B8B6,0 ' 464 = POKE &B189,0
170 POKE &B8B5,0 ' 464 = POKE &B188,0
180 POKE &B8B4,0 ' 464 = POKE &B187,0
190 a=TIME:PRINT"TIME =";a
200 PRINT:END
```

So there you are – never let anyone tell you that you can't do something from Basic!

ics to simulate an orrery. It can be used to predict the motion of the planets with incredible accuracy. You don't have to understand these laws to use the program, all you need do is type it in and run it. You will then be asked to supply the following data:

- **Outer or inner planets:** Because of the widely differing radii of their orbits, all nine planets cannot be displayed on screen at the same time. You can press the letter O to display Jupiter, Saturn, Uranus, Neptune and Pluto – with a small diagram of the Earth's motion to remind you where it is – or the letter I to display Mercury, Venus, the Earth, and Mars.
- **The date:** Type it in using the format DD,MM,YYYY. For example: 1,1,1989 or 25,12,1855.
- **Pause time:** This is the delay in seconds between each frame.
- **Step time:** The program displays the position of the planets on day DD, then jumps forward by S days, where S is the step time. As the inner planets move relatively quickly, a step time of six or seven days is sufficient, whereas you will need a step time of 100 to 200 days if you want to see the outer planets moving at any speed greater than a crawl.

If everything is OK, you should see the planets from a viewpoint somewhere above the Solar System about half way towards Alpha Centauri.

The date will be continually updated as the planets slowly move around the Sun, leaving a trail as they move. If you wait long enough you should see that the planets' orbits are elliptical rather than circular.

While this frenzied activity is going on you can press P to pause the program, R to restart it, E to return to Basic and D to display some technical data.

universe

```
[F2] 1270 yr=year:mo=month
[49] 1280 IF month<3 THEN yr=yr-1:mo=m
     o+12
[6E] 1290 a=yr\100:b=2-a+a\4:c=INT(365
     .25*yr):d=INT(30.6001*(mo+1))
[04] 1300 julian=b+c+d+day+1720994.5
[17] 1310 julday=julian-2444238.5
[67] 1320 GOSUB 2050
[AD] 1330 CLS:ORIGIN 320,200:CALL &BBD
     E,1
[DF] 1340 TAG:MOVE-8,8:PRINT CHR$(240)
     ;:TAGOFF
[26] 1350 PEN 3:LOCATE 1,1:PRINT name$
     " planets"
[E4] 1360 PEN 1:LOCATE 1,7:IF planet$=
     "O"THEN PRINT"EARTH"
[9D] 1370 PEN 2:LOCATE 1,25
[43] 1380 PRINT"P - pause D - see data
      R - rerun E - end";
[30] 1390 WHILE NOT flag
[6B] 1400 PEN 1:GOSUB 2110
[F0] 1410 FOR z=1 TO num
[A4] 1420 LOCATE 30,1:PRINT USING"## &
      ####";day,mon$,year
[29] 1430 na=0.985647332*julday/elt(z,
     1)
[5A] 1440 na=FNrange(na)
[C4] 1450 nb=(na+elt(z,2)-elt(z,3))*ra
     dian
[3D] 1460 theta=na+(twodeg*elt(z,4)*SI
     N(nb))+elt(z,2)
[F0] 1470 theta=FNrange(theta)
[52] 1480 phi=(theta-elt(z,3))*radian
[F1] 1490 ra=(elt(z,5)*(1-elt(z,4)*elt
     (z,4)))/(1+elt(z,4)*COS(phi))
[89] 1500 ra(z)=ra:th(z)=theta
[ED] 1510 px(z)=scale*ra*COS(theta*rad
     ian)
[50] 1520 py(z)=scale*ra*SIN(theta*rad
     ian)
[FF] 1530 NEXT
[FB] 1540 FOR z=1 TO num
[15] 1550 GOSUB 1990
[08] 1560 NEXT
[7A] 1570 IF planet$="O"THEN GOSUB 171
     0
[78] 1580 julday=julday+stime
[B9] 1590 julian=julian+stime
[AE] 1600 IF NOT INKEY(27)THEN SOUND 1
     ,100:GOSUB 1820
[64] 1610 IF NOT INKEY(61)THEN SOUND 1
     ,200:GOSUB 1860
[64] 1620 IF NOT INKEY(50)THEN SOUND 1
     ,400:flag=-1
[0F] 1630 IF NOT INKEY(58)THEN MODE 1:
     CALL &BC02:END
[B6] 1640 CALL 200,pause
[00] 1650 FOR z=1 TO num
[1A] 1660 GOSUB 1990
[48] 1670 PLOT px,py,3
[10] 1680 NEXT
[69] 1690 WEND
[FE] 1700 RUN
[62] 1710 na=0.985647332*julday/1.0000
     4
[5A] 1720 na=FNrange(na)
[3B] 1730 nb=(na-3.76286301)*radian
[31] 1740 theta=na+(twodeg*0.016718*SI
     N(nb))+98.83354
[F0] 1750 theta=FNrange(theta)
[DE] 1760 ORIGIN 0,0,0,76,308,372:CLG
     0
[9A] 1770 ORIGIN 36,340,0,640,0,400
[20] 1780 PLOT 0,0,1:PLOT 2,0:PLOT 2,2
     :PLOT 0,2
[3D] 1790 PLOT 30*COS(theta*radian),30
     *SIN(theta*radian),2
[29] 1800 ORIGIN 320,200
[6E] 1810 RETURN
[A2] 1820 BORDER 2
[DC] 1830 WHILE NOT INKEY(27):WEND
[8E] 1840 BORDER 0
[7A] 1850 RETURN
[D5] 1860 CALL 209,&C000,&4000,&4000
[93] 1870 WINDOW#1,5,35,6,20:PAPER#1,3
     :PEN#1,0:CLS#1
[BA] 1880 LOCATE#1,4,2:PRINT#1,"PLANET
           THETA   RADIUS"
[98] 1890 PEN#1,1:start=-4*(num=5)
[FD] 1900 FOR a=1 TO num
[8B] 1910 LOCATE#1,4,2*a+2
[7D] 1920 PRINT#1,USING"\        \ ###.
     ##  ##.####";name$(start+a),th(a)
     ,ra(a)
[07] 1930 NEXT
[79] 1940 PEN#1,0:LOCATE#1,5,14:PRINT#
     1,"Press SPACE to continue"
[7D] 1950 WHILE INKEY(47):WEND
[8D] 1960 SOUND 1,25
[F4] 1970 CALL 209,&4000,&C000,&4000
[85] 1980 RETURN
[5F] 1990 px=px(z):py=py(z)
[A6] 2000 CALL &BC59,1
[0B] 2010 PLOT px,py,2:PLOT px+2,py
[B3] 2020 PLOT px,py+2:PLOT px+2,py+2
[6E] 2030 CALL &BC59
[68] 2040 RETURN
[C2] 2050 IF num=4 THEN RESTORE 2190 E
     LSE RESTORE 2230
[FE] 2060 FOR a=1 TO num
[B1] 2070 FOR b=1 TO 5
[83] 2080 READ elt(a,b)
[FB] 2090 NEXT b,a
[5E] 2100 RETURN
[41] 2110 f=ROUND(julian)
[38] 2120 IF f<2299161 THEN a=f ELSE g
     =INT((f-1867216.25)/36524.25):a=f
     +1+g-g\4
[62] 2130 b=a+1524:c=INT((b-122.1)/365
     .25):d=INT(365.25*c):e=INT((b-d)/
     30.6001):day=b-d-INT(30.6001*e)+j
     ulian-f
[D9] 2140 IF e>13.5 THEN month=e-13 EL
     SE month=e-1
[03] 2150 IF c<2.5 THEN year=c-4715 EL
     SE year=c-4716
[F5] 2160 IF month<3 THEN year=year+1
[F8] 2170 mon$=MID$("JanFebMarAprMayJu
     nJulAugSepOctNovDec",(month-1)*3+
     1,3)
[76] 2180 RETURN
[7F] 2190 DATA .24085,231.2973,77.1442
     128,.2056306,.3870986
[C7] 2200 DATA .61521,355.73352,131.28
     95792,.0067826,.7233316
[E8] 2210 DATA 1.00004,98.83354,102.59
     6403,.016718,1
[47] 2220 DATA 1.88089,126.30783,335.6
     908166,.0933865,1.5236883
[18] 2230 DATA 11.86224,146.966365,14.
     0095493,.0484658,5.202561
[94] 2240 DATA 29.45771,165.322242,92.
     6653974,.0556155,9.554747
[68] 2250 DATA 84.01247,228.0708551,17
     2.7363288,.0463232,19.21814
[64] 2260 DATA 164.79558,260.3578998,4
     7.8672148,.0090021,30.10957
[31] 2270 DATA 247.691,209.439,223.522
     4,.2502,39.409
[F3] 2280 DATA Mercury,Venus,Earth,Mar
     s,Jupiter,Saturn,Uranus,Neptune,P
     luto
[64] 2290 DATA CD,19,BD,1B,7A,B3,20,F8
     ,C9
[23] 2300 DATA DD,4E,00,DD,46,01,DD,5E
     ,02
[0D] 2310 DATA DD,56,03,DD,6E,04,DD,66
     ,05
[FA] 2320 DATA ED,B0,C9
```

Stardodger II – the BCPL version

Stewart Russell shows you how to program the same game three times, in three very different languages

ONCE the Basic version of Stardodger worked to my satisfaction – which took longer than expected – the program was rewritten using Arnor's BCPL compiler. BCPL was the forerunner of the oh-so-trendy C language beloved by computer scientists and other deviants. Unlike C, BCPL is quite readable, yet it still enforces a carefully structured programming style.

This is due to its syntax and the lack of error checking. Care must be taken or the compiler will merrily churn out guff without a single beep of displeasure.

The BCPL Stardodger took far less time to write than the Basic version, mainly because all the program logic had already been worked out.

Dynamic elegance

A particularly neat feature of BCPL is the case structure – SWITCHON..INTO..CASE, used here in the collision detection routine – which is similar to, but more elegant than, Basic's ON..GOTO.

Nearly all the variables used in this program are static variables; this means they are always available to any part of the program. Dynamic variables – such as *t* used in the pause procedure – disappear after being finished with. Unlike Basic, all BCPL variables and constants, known as *manifests*, have to be defined before use.

Also unlike Basic, which has string, integer and real variables, BCPL has only one type of variable – the "word", or 16 bits. This makes it ideal for implementation on a home micro.

It does have some odd conventions though. For instance, the asterisk is thought of as a control character. It cannot be represented as simply * but has to be written as ** before it is accepted. Gripes aside, BCPL is a lovely language to use.

You can use any Ascii text editor for producing the source code. Indenting the text is not necessary, but helps to show the levels of the program. After saving the text – call it STARDOJ.B – it may be an idea to dry run it through the compiler without GETting any of the libraries. As long as only *Undefined identifier* errors are produced the text should be OK. But beware of spelling mistakes in procedure names, as these cannot be checked for until the final compilation stage.

You must first invoke the compiler from disc, using RUN"DISC and then |BCPL. Follow the compiler dialogue in the panel, but note that minor differences may occur in the numeric values produced.

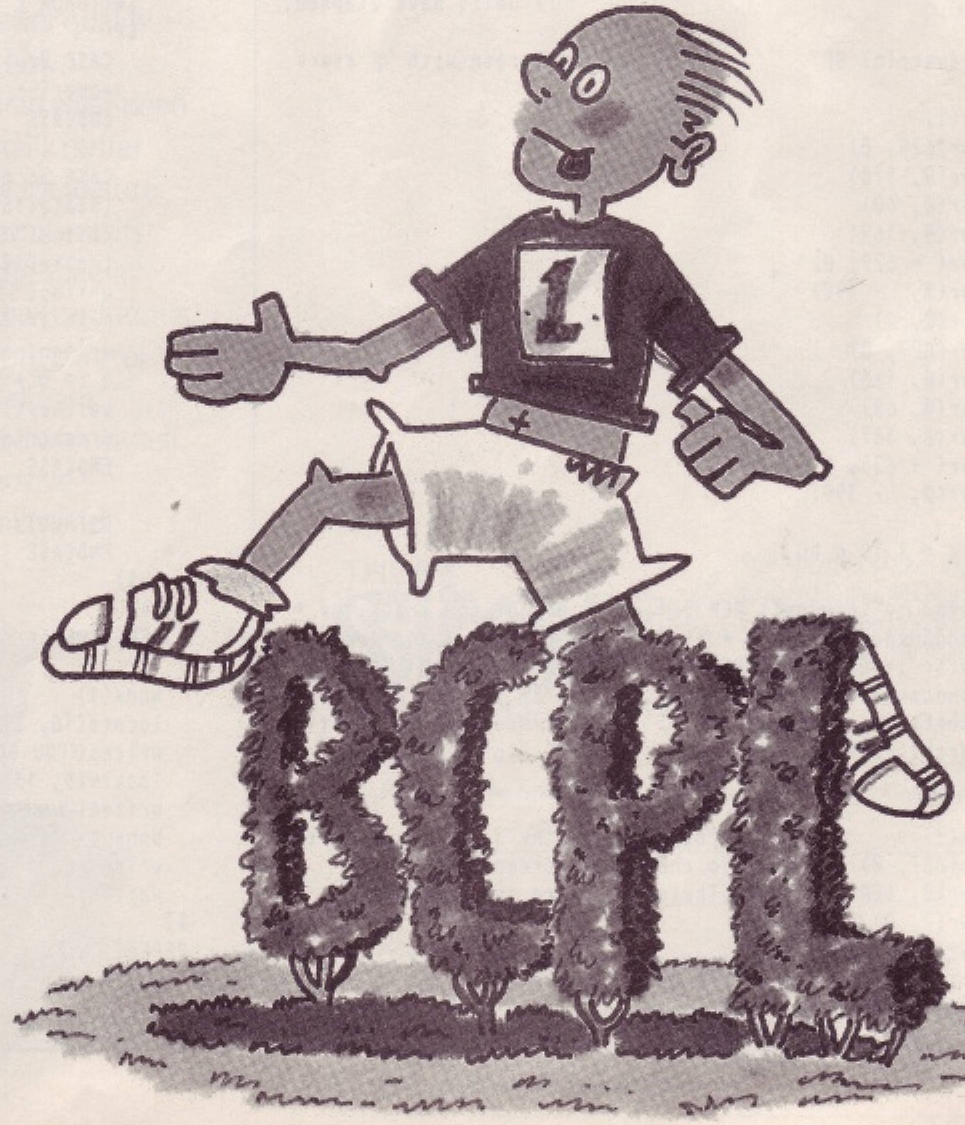
● *Next month, in the final part of this series, we'll look at the assembly language version.*

```
Arnor BCPL compiler
Output file name? STARBCPL
-> OPTION S-,B-
-> GET"ALIBHDR"
-> GET"ALIBHDR1"
-> GET"AMSDOS"
-> GET"STARDOJ.B"
-> .
Phase 1 complete. Tree size 15652
Phase 1 errors: 0
Phase 2 complete. Code size 9631
Phase 2 errors: 0
Code origin 370
```

Compiling the BCPL version – the dialogue

Routine	Basic lines	BCPL procs
Initialisation	20-70	start
Print title screen	90-170	start
Draw game screen	180-450	drawscr
Main game logic	470-530	start
Print game over screen	550-600	start
Print success screen	620-680	start
Wait for keypress routine	700-760	waitkey

The main routines – a comparison



```
// Stardodger using Arnor's BCPL compiler.
// Written by Stewart C Russell of Edible Computers.
// Requires Alibhdr, Alibhdr1 and Amsdos libraries.

MANIFEST
$(
  star = '**'
  delay = 3            // Loop delay in 1/300ths of a sec.
$)

STATIC
$(
  increment = 5        // Number of stars added per screen
  xstar = 0            // X-position of star
  ystar = 0            // Y-position of star
  dy = 4               // Y-position increment
  q = 5                // Start no of stars per screen
  done = 0             // Number of screens completed
  next = 0             // Next screen number
  status = 0           // Status, 1 = dead, 0 = not dead
  ks = 0               // Shift key status
  c = 0                // Ink status for collision
  y = 0                // Collision detection y-pos increment
$)

LET waitkey() BE       // Prints message and waits for key
$(
  locate(8, 25)
  writes("Press any key to continue.")
  WHILE keyvalid() DO LOOP           // Clear buffer
  UNTIL keyvalid() DO LOOP           // Continue on keypress
$)

LET pause(length) BE         // Pauses for length/300 seconds
$(
  LET t = time()                      // Get current time
  UNTIL time() EQ t + length DO LOOP  // Wait until "length"
$)                                    // units have elapsed.

LET drawscr(q) BE           // Draw the screen with "q" stars
$(
  mode(1)
  drawr(629, 0)
  drawr(0, 170)
  mover(0, 60)
  drawr(0, 169)
  drawr( - 629, 0)
  drawr(0,  - 399)
  drawr(0, 2)
  drawr(627, 0)
  drawr(0, 168)
  mover(0, 60)
  drawr(0, 167)
  drawr( - 625, 0)
  drawr(0,  - 399)

  FOR s = 1 TO q DO
  $(
    xstar := (random() REM 561) + 50 // Get rnd x-pos for *
    randomseed := xstar + time()     // Feed random seed
    ystar := (random() REM 361) + 20 // Y-pos
    randomseed := randomseed - (xstar REM ystar + q) // Seed
    move(xstar, ystar)               // Move to rnd position
    gwrch(star)                      // Plot a * there
  $)

  gpen(3)            // Draw lines in ink 3 at end of screen
  move(637, 0)       // to check for screen completion
  drawr(0, 400)      // (These lines are invisible)
  drawr(2, 0)
  drawr(0,  - 400)
  gpen(1)            // Set pen to white again
  move(0, 200)       // Move to line start position
$)

LET start() BE      // *** Main Routine ***
$(
  $(
    mode(1)
    border(0, 0)
    ink(0, 0, 0)
    ink(1, 26, 26)
    ink(3, 0, 0)                     // Set up inks and mode
    locate(16, 1)
    writes("Stardodger")             // Print title screen
    locate(1, 5)
    writes("Avoid the killer Asterisks, and seek the")
    locate(8, 6)
    writes("wondrous Nextscreen Gap !")
    locate(12, 13)
    writes("Use SHIFT to climb")
    pen(2)
    locate(3, 18)
    writes("Written in BCPL by Stewart C Russell")
    locate(9, 19)
    writes("Edible Computers 23/4/88")
    pen(1)
    waitkey()                  // Press any key message
    status := 0                // Reset pointers
    q := 5                     // to screen 0, status = alive
    drawscr(q)                 // Draw screen 1 (five stars)
    $(
      ks := 0                  // Clear key status variable
      drawr(4, dy)             // Draw line unit
      pause(delay)             // To allow for reactions
      ks := inkey(21)          // Get shift key status
      TEST ks EQ - 1 THEN dy := 4 ELSE dy :=  - 4 // Move up
      y := dy / 2              // Get y-pos in front of line
      c := gtestr(2, y)        // Test point in front of line

      SWITCHON c INTO          // Act on ink no. accordingly
      $(
        CASE 0: y :=  - 1 * y // If ink 0
        mover( - 2, y)         // go back to old coords.
        ENDCASE

        CASE 3: mode(1)        // If ink 3
        locate(16, 1)          // congratulate player
        writes("WELL  DONE")  // on completion.
        locate(10, 13)
        writes("Stand by for Screen ")
        next := (q / increment) + 1
        writen(next)                 // Print next screen no
        q := q + increment           // Increase no of stars
        waitkey()
        drawscr(q)                   // Draw the next screen
        ENDCASE

        DEFAULT: status := 1         // Default to dying
        ENDCASE
      $)
    $)
    REPEATUNTIL status NE 0    // Repeat loop while not dead

    mode(1)          // Player is dead if we've got to here
    locate(16, 1)
    writes("YOU GOOFED")
    locate(5, 13)
    writes("Number of Screens completed = ")
    done := (q / increment) - 1
    writen(done)              // Print no of screens completed
    waitkey()
  $)
  REPEAT                      // Repeat outer loop of "start"
$)
```

The day Roger Jackson sent his first mailshot.



I was impressed by the fact that Star have now produced a great looking little budget printer with a 24 pin head.

I was impressed by its excellent quality – the 8 resident fonts available and its high density letter quality helped me produce a really professional mailshot.

I was impressed by the extremely swift draft elite speed of 170cps and LQ elite at 57cps and the standard 7k buffer.

I was impressed by the special push-tractor feature that allows the LC24-10 the lowest possible tear off and its ability to 'park' continuous paper and load single sheets automatically – so there's no need to remove the continuous.

I was impressed by the touch-button front control panel that makes using the printer an absolute dream.

But most of all, I was particulary impressed with myself.

Because my Star LC24-10 was so inexpensive and no other printer comes close for sheer quality and value-for-money.



THE star COMPUTER PRINTERS

Star Micronics U.K. Ltd.
Craven House, 40 Uxbridge Road,
Ealing, London W5 2BS.
Telephone: 01-840 1800.

A division of
Star Micronics Co., Ltd., Japan.

Please tell me how the Star LC24-10 can handle my printing needs.

Name ______________________

Company ______________________

Address ______________________

____

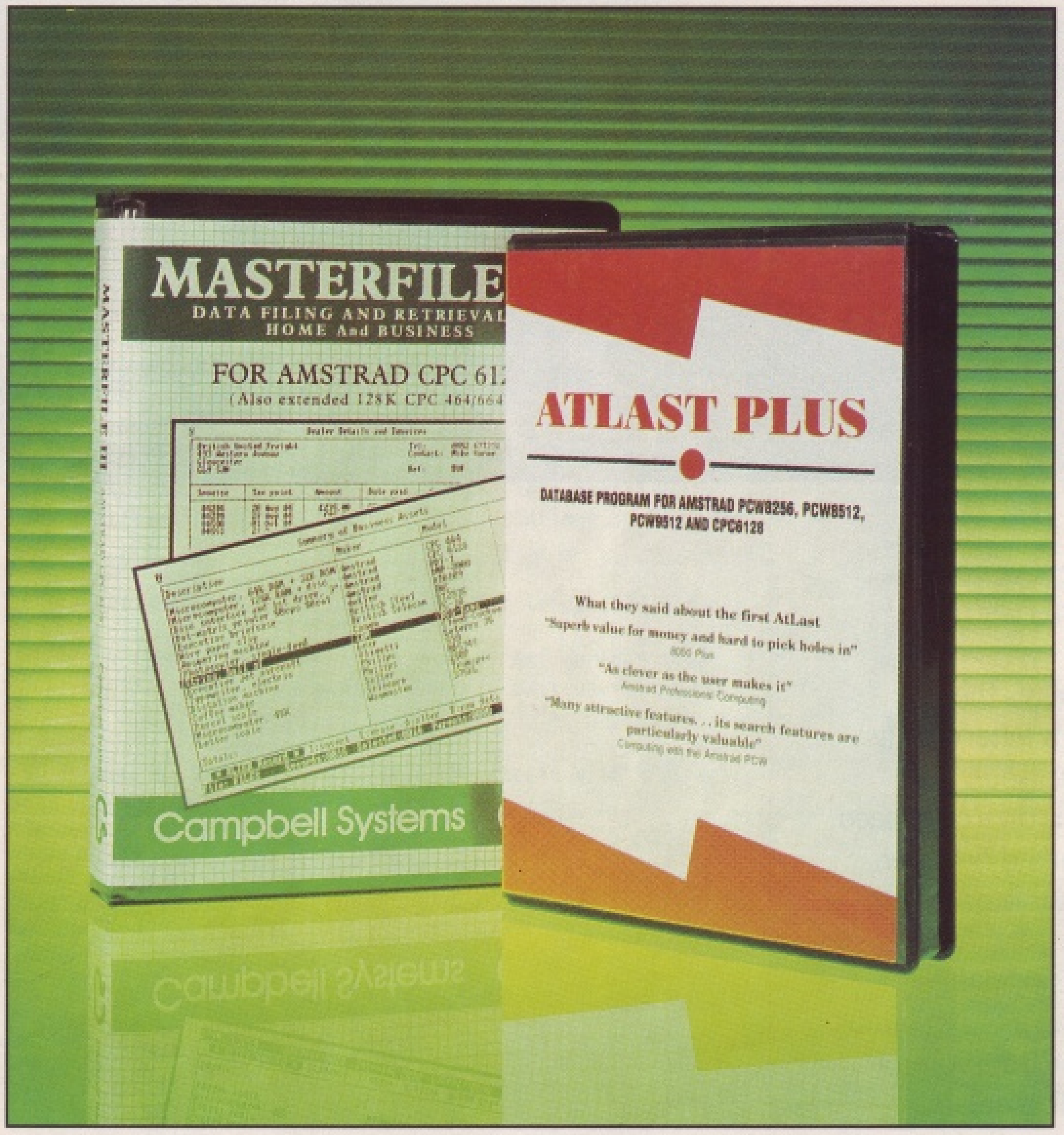
Postcode ____________ Telephone ____________

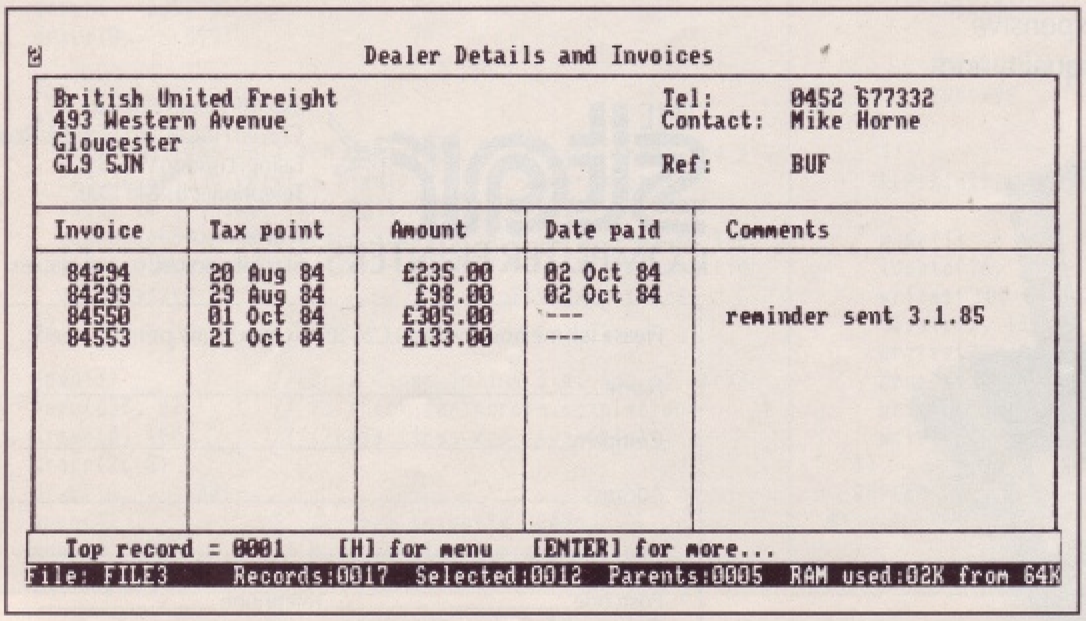
Or just call Belinda on 01-840 1829.

L24ACU10

Dynamic duo

CP/M has the advantage over Amsdos in that you can have several random access files open at any one time. Alex Aird compares two databases that sit on opposite sides of the fence





Dealer Details and Invoices

British United Freight
493 Western Avenue
Gloucester
GL9 5JN

Tel: 0452 677332
Contact: Mike Horne
Ref: BUF

Invoice	Tax point	Amount	Date paid	Comments
84294	20 Aug 84	£235.00	02 Oct 84	
84299	29 Aug 84	£38.00	02 Oct 84	
84550	01 Oct 84	£305.00	---	reminder sent 3.1.85
84553	21 Oct 84	£133.00	---	

Top record = 0001 [H] for menu [ENTER] for more...
File: FILE3 Records:0017 Selected:0012 Parents:0005 RAM used:02K from 64K

Masterfile III menu by menu approach

RANDOM access files with indexes mean that no sorting is needed. Data is stored in the order that it is entered, and the index keeps track of where things are on the disc. So if you want lists of club members by name and membership number, you could keep one index for names and one for membership numbers. This would be the same as having two separate sorted lists.

AtLast Plus makes full use of the CP/M random access facility by keeping both data and index files open at the same time and finding items of data by referring to the index or indexes.

You can liken this to you going to the local library for information on, say, Basic programming. First you could consult a map to find the nearest library, then look through a card index of subjects to find the shelf where computing books were stored, then look along the shelves for books on Basic programming, then consult the book's index pages.

AtLast Plus works in a similar fashion, allowing a maximum of five indexes per file, and 10 files per database.

> *Masterfile III for the 6128 has become the standard by which to judge other databases. It runs under Amsdos and all the data is stored in memory. No disc access makes the program very quick to use.*

Putting it to work

AtLast Plus can be used for storing most kinds of data, but is limited when it comes to calculations. For example, if you wanted to keep cricket club records you could record the subs paid by each member and the program would give you a total amount of subs paid by all members, or each group of members. Likewise you could get the total number of runs scored by each batsman.

The limitation is that you wouldn't be able to calculate batting averages. How severe that limitation is depends upon the use you have for a database.

I set up a genealogical database to test out the program and found it very easy to get started. First you define the fields – AtLast Plus only allows 20. You might think that you would soon run out of fields, but this is not the case because each field may have up to 99 elements – a field to record the names of someone's children could have, say, 10 elements and the program would automatically refer to each element as children1, children2 and so on.

Starting out from scratch can be a little daunting with Masterfile III, but the progressive menu by menu approach is helpful to a certain extent. Initial record designs, however, can be a little tricky. There is scope here for someone to release a disc full of ready made formats.

First you must specify data names, then use these names when setting up the format. There is no need to specify the length of a field as Masterfile III uses variable length fields. This means no space is wasted with short or empty fields.

Fields, forms and indexes

Fields can be of various types in AtLast Plus. Alpha is for names and suchlike, Upper converts all input to upper case. There are three types of numeric fields, Integer, Fixed point decimal and Real. The Date field is intelligent and won't permit, for instance, 31st February.

A Serial field is automatically incremented and is used for unique reference numbers. The HMS field keeps data in the form of hours minutes and seconds. The Constant field type is for storing data which is often repeated, like names of towns – you only have to type the first letter or two of a name, the program will fill in the rest. In all, nine different types of fields are supported.

After the field definitions are done it is time to set up the indexes you intend to use. For my genealogical database I used indexes for reference number and date of birth.

The program creates a form for you to display all details on the screen so there is no complicated design process to go through. The form can be edited to suit your own tastes, or even completely redone. It is possible to have several different forms to allow you to display the data in several different ways.

If you use a unique number for each record it makes the search for information very easy. Using the genealogical example you would see one record, and its parents and children could be listed along with a reference number. To find a certain child's details it is simply a matter of pressing S to search and the number to find.

One of the more powerful options of AtLast Plus is List. You can list records either to screen, disc or printer in a specific order. In my genealogical database I used the Royal Family and listed records using the date of birth index and a condition that the title field began with a letter K. This enabled me to list all the kings of England in the correct order.

Layout is very flexible in Masterfile III and several form designs can be used for the same data. Little boxes can be drawn around pieces of data and colour can be used, both can serve to highlight important items.

Each format is divided into Heading area and Record areas. In a cricket club records example, a member's name, address, membership number and so on would be placed in the heading area, and scores would appear in the record area. Several scores could be displayed at once and a highlight bar can be used when searching through the records.

New records can be added at any time, although it is advisable to sort the file after each session. The sorting speeds up the display of the data considerably.

The relational abilities of Masterfile III are very useful. The name address and membership number would be the parent record, scores would be the child records. The membership number would be used as a link between both.

A separate format could be used for address labels. All that is needed is to have a form that contains only name and address and is eight lines deep. The printing of labels is a very easy thing to do and switching between forms is accomplished at the touch of a key.

Conditions

AtLast Plus has many applications such as printing address labels to all people having a certain post code or finding all people in the database within a certain age group, or a combination of both. A great many conditions can be used to filter the records, enabling you to extract just the information you need.

You can have up to 10 files in each database, so if you want to record a great amount of detail about a single person you can create a second file. This could have a reference number and one other field of, say, 15 elements. Each element could have 79 characters. This corresponds to around a screenful, and by remembering the reference number all you have to do is switch files and search again by number. The process is quick, easy and the only limitation is disc size.

The printing of address labels with Masterfile III can be made very selective. If you have a field for the amount of subs paid you would select records on the basis of the subs paid field being empty. Then it would be just a matter of loading a roll of labels into the printer and pressing P.

Sorting data on surname can present a problem with some databases. For example J Smith would be sorted into the Js and Mr J Smith would be appear among the Ms. Masterfile III gets around this problem by allowing you to enter the data as Mr J\Smith. The backslash tells Masterfile to sort into order as if the data had been entered as Smith Mr J.

Making changes

Databases created with the earlier version of AtLast are not directly compatible. All is not lost though because you can export data from the earlier version to a disc file then import the data into AtLast Plus. You can also create indexes to go with this file. The process works with any plain Ascii file so you can import data from a variety of sources.

Pressing T from the main menu in Masterfile III – a hangover from the early tape version – takes you to the disc menu. Apart from the usual save and load you can merge data from other files. Either the whole file can be merged or just a select few records. Formats, too, can be merged into the current database file. There is no real need to leave the Masterfile III environment as all the necessary disc management functions are provided.

Data can be exported, but not imported, from Masterfile III, meaning it can be used for jobs like mail merging. The data can be exported in various formats so as to be suitable for a variety of mail merge type programs, or it can be sent in a suitable form to be used in a Basic program.

Printing it out

There were problems in AtLast Plus with outputting data to the printer. I had name and reference number neatly aligned on screen but was unable to get them aligned properly on the printer – see Children in the printout alongside. Also, when I wanted each record on a single page the two line heading was printed on one page and the record on another.

Printer control codes need to be sent to the

```
Field          Selection Condition

Lineage[ 2]  EQ M

                              Geneological  Database
                              ----------------------
                             The British Royal Family
                             ------------------------

Name        : George                                 Refnum  :  12
Title       : King George V                          Lineage : M
Reign From : 1910  To : 1936
Born       : 1865    Died : 1936
                                                         Reference Number
Spouses Name : Princess Mary of Teck                            13
Mothers Name :
Fathers Name :
Children      : Edward VIII                  10
                George VI                  4
                Mary Princess Royal                 24
                Henry Duke of Gloucester                26
                George Duke of Kent                 34
                John               50
```

Mis-aligned output from AtLast Plus

printer before booting the program. It's not a difficult procedure to do from either Basic or CP/M, but it would have been nice to have been able to do it without leaving the program.

Masterfile III allows you to send raw codes to whatever printer you have fitted to your CPC. Condensed, enlarged, NLQ ... all are easily set up by referring to your printer's manual for the correct codes. Hard copies are printed with data in the positions you see them on screen. No problems.

Conclusions

If calculations are important then Masterfile III is the one to go for as AtLast Plus is very limited in this area.

If you are into geneology then AtLast Plus is perfect, and you will find that file size limited only by disc space is a real help.

Then again, because Masterfile III runs under Amsdos and the whole of the file is kept in memory, it is exceedingly fast. AtLast Plus suffers from CP/M's inherent slowness at accessing disc drives.

Both have good manuals that feature excellent tutorial and advanced sections. The Masterfile III manual has no index, which is a pity, but the detailed contents pages help you find things fairly easily. The AtLast Plus manual was written by David Foster.

The major advantage of AtLast Plus is the fact that it runs under CP/M Plus. This makes the files extremely portable. AtLast Plus can import data from a plain Ascii file, making upgrading from a variety of other databases a definite possibility.

The provision of User Basic in Masterfile III allows experienced programmers to set up the machine and manipulate data in any way they choose. Beginners are not forgotten though as some of the Basic programs supplied in the manual need no alteration.

These two databases are really very good. I would recommend both ... it all boils down to what sort of data you want to store.

How they rate	AtLast Plus	Masterfile III
Flexible layout	●	●
Calculations		●
Unlimited file size	●	
Change layout	●	●
Fast sorting	●	●
Fast searching	●	●
Conditional operators	●	●
Set up printer from program		●
File protection	●	
Export data	●	●
Import data	●	
Idiot proof manual	●	●

The AtLast Plus database runs under CP/M+ on the 6128 and costs £39.95 on disc. It is available from Rational Solutions, Carn House, Canworthy Water, Cornwall, PL15 8UB. (Tel: 056-681 511).

Masterfile III runs under Amsdos on the 6128 and costs £39.95 on disc. It is available from Campbell Systems, 7 Station Road, Epping, Essex, CM16 4HA. (Tel: 0378 77762).

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Slippery character

Salamander is the latest program from Andrew John Glaister. He spoke to Simon Rockman about his life and programming projects



THE Salamander coin-op machine has been drawing the crowds in the arcades since its first appearance. In essence it is a beefed up Nemesis, a scrolly shoot 'em up with a host of additional weapons. One of the main attractions is that Salamander is a two player game. Two friends can pilot ships through the alien territory together. Unfortunately this has been dropped from the home computer versions.

The arcade machine has megabytes of memory and a 32 bit 68000 processor – you can't really expect a 64k, 8 bit, Z80 machine to be able to mimic that. Still, the CPC version does a pretty good job.

Andrew Glaister was the archetype whizz kid programmer of a few years back. Now 21, he lives in Crawley, Surrey with his mother and a cat called Bill. "There used to be a Ben", he says, "but he got into one cat fight too many. Bill is a clever cat, he'll nip out to the hall when the phone rings so he can sit on your lap as you take the call".

Andrew's first computer only had eight switches, he designed and built it himself. "It had 31 bytes of ram, and I never filled it up."

From there he progressed to a computer built from a kit, that had a hexadecimal keypad, but the first machine he had which anyone would really recognise was a ZX81. He wrote a few games for this, including Invaders and Meteor. Then when the Spectrum was announced he decided that it would be his next machine.

Unfortunately there were long delays in Spectrum deliveries. Andrew spent the months writing a Defender type game on paper. He called it Orbiter. When the black beastie turned up, Andrew keyed the hex in and stole a march on the programmers who only started when the computer arrived.

But there were problems with working like this. "I didn't know how to produce sound from machine code, so every time you shoot an alien the program jumps into Basic, does a BEEP and returns", he admits.

Orbiter was sold by Silversoft and was a huge

success. Perhaps this shows the roots of Salamander.

There were other games in between, of course, mainly on the Spectrum. Andrew wrote the first two sections of The Fourth Protocol: "It had some great windowing routines – I may well use them again", Empire for Firebird – "They might release it on the Amstrad one day – they keep on threatening to put it out on Silver" – and Comet, of which he says: "It was either a couple of months late or 76 years too early".

As I doubt that the CPC will be around then, I think they missed the boat. He has a number of other programming projects to his credit. If you have an RAC card it will have been printed by Andrew's program.



Andrew Glaister – a professional programmer

The game

Salamander is a Konami game, and Andrew has worked for Konami before – he converted Jailbreak to the Spectrum. Salam may be Arabic for Peace but Salamander is nothing like peaceful. It's named after the reptile owned by such dignitaries as Labour's Red Ken.

The first attack wave consists of strings of aliens. They don't fire at you, but you have to kill whole formations if you want to pick up bonus weapons. See the weapons chart for details.

Then you start to encounter the planet. It's one of those places which has land both above and below you. Nasty creepy crawlies run along the surface, the missiles come in extra useful for zapping them. Large arms grope at you. With some heavy cannon fire they can be made to disintegrate – but it's not the last you'll see of them.

Next comes a wave of horns. These puncture the air and look like whale bones. Timing is very important here, make sure you dodge them since you won't get an opportunity to top up on special weapons for a while. In a minute a standard ship

Speed up

This makes your spaceship move faster. In the arcade version the difference is slight, you have five levels of speed up and really need to get all five for it to be worthwhile. On the Amstrad there are only two speeds, and the difference is quite marked. To have all five levels would mean that the standard game would be too slow to be playable.

Multiple

The best feature of Nemesis was the game's ability to add an extra ship which was towed behind your main ship. Salamander goes one better. You can pick up two extra orb-like craft. Each shares your weapons specification but cannot be destroyed unless the main craft is hit. They multiply your firepower, making the game a good deal easier.

Missiles

You can swoop down and attack the ground-based enemy, but this is likely to end in tears. Much better to send a missile down to do the dirty work for you. They hug the ground and will take out any nasties they meet.

Laser

Your standard bullet will only kill the first enemy it encounters. The laser slices through whole formations. It's an awesome weapon, particularly when allied with multiple ships. The laser looks like the weapon in Defender. It is best to fan the multiples out when using it.

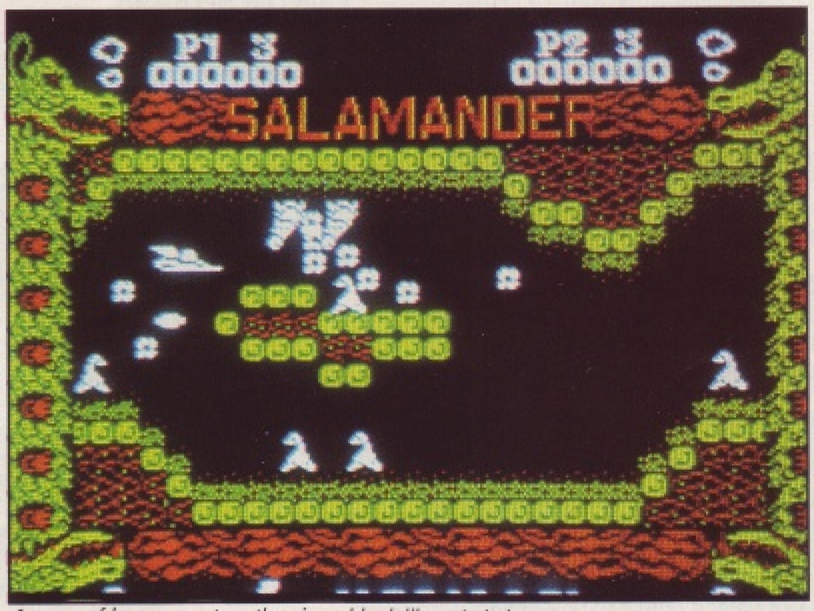
Bonus

This isn't a feature of the arcade game and replaces ripple lasers. The game is too easy with ripple lasers and to make it more difficult would render a standard craft impotent.

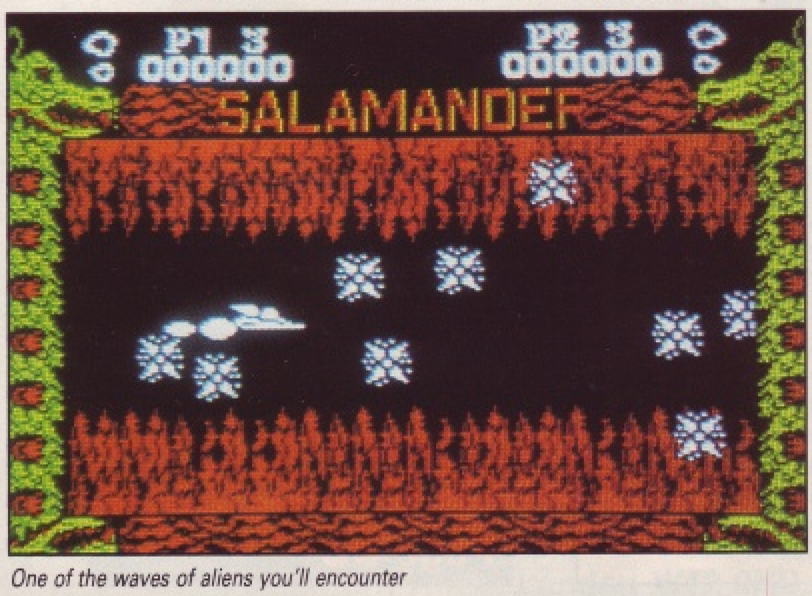
In the arcade you can put more money in to get extra lives, with a maximum of 62. It would be a little unfair to expect you to nip down to the shops to pay for extra lives in mid-game.

It would also be cheating the Hairy Hacker if you started the Amstrad version with more that a reasonable number of lives. The bonus simply gives you an extra life.

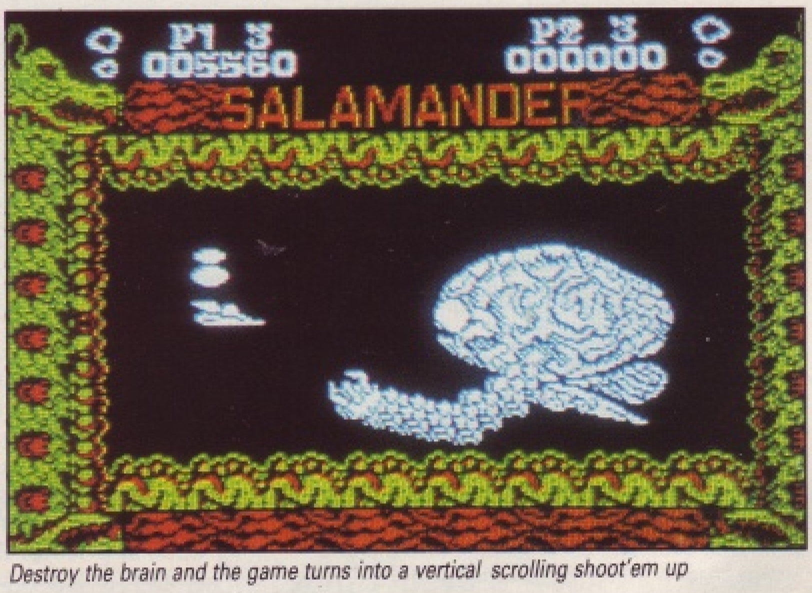
Bonus weapons chart



A wave of horns puncture the air and look like whale bones



One of the waves of aliens you'll encounter



Destroy the brain and the game turns into a vertical scrolling shoot'em up

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HOMESPREAD
A simple but flexible spreadsheet program you can use without having to learn all the complicated commands of a big spreadsheet, yet still perform some startling and sophisticated operations.

DIARY
A disc-only program that demonstrates how to simulate random access files under Amsdos without resorting to machine code. Diary is a useful program for making sure you don't book a table at the local sushi bar when you'll miss EastEnders.

MODE 3*
Mode 3 is a two-screen, four colour, Mode 0 that lets you have data on the background screen which you can't see, but which is nevertheless there. Very fast animation can be created by flipping instantly from the foreground to the background screen. *January 1986.*

ANIMATOR*
Animator is a wire frame drawing suite of programs that allows you to put together a number of key frames, and the software will 'tween' them to produce a finished cartoon. *April 1986.*

TRACE*
The TRON and TROFF commands are very useful for debugging basic programs, but they often make a mess of the screen. This routine allows you to re-direct the trace to a screen window or printer. *December 1985.*

CHORD FINDER*
This program can display over 2,000 chords, and up to 36 chord shapes can be saved to tape or disc and loaded when required. *September 1985.*

JET SET WILLY HACK*
Infinite lives and a magic teleport help you trip around miner Willy's mansion. Note that this hack will only work with The Final Frontier version and not with the versions of the game that appeared on a compilation. *September 1985.*



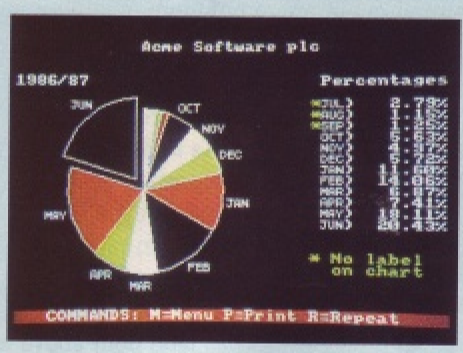
DOUBLE HEIGHT PRINT*
A useful routine for enlarging letters on the screen. So if you are a tall type, then letters help you to expand your horizons. *September 1985.*

ELITE DISC HACK
So you have been playing Elite for a while and are still mostly harmless. If you want millions of credits, a few bolt-on goodies or even the hallowed Elite status, then ZZKJ's program can provide it. Instantly.

JUSTIN'S SCROLL*
If you look in wonder at arcade games in which spaceships whizz over a planet's surface at one million miles per hour and wish that you could write a program to do that, then you need Justin's Scroll. Peter Green adapted this program for the scrolling in Rimrunner, and the Zeit Corporation found it came in useful for BMX Kidz. This *is* how the professionals do it. *June 1987.*

RSX LISTER
Most utility roms contain an RSX lister, but they only list those RSXs that are in rom. What about those that have been soft loaded? With this routine you can reveal *all* the RSXs hidden in your ram.

In some cases you will need to refer to the issue of ACU in which the programs appeared. In the list above these are shown by * followed by the month. If you do not have these issues, you can send for the Utilities Unlimited documentation pack at the special price of £4.95.



PRINTER SPOOLER
When you print out a file from disc Arnold spends all his time printing. With a posh computer, like the PC, this kind of job can be done in the background enabling you to carry on using the computer while the printer is working. With Printer Spooler your humble CPC can do the very same thing. It's just like having two computers.

EPSON DUMP
A dump for Epson compatible printers, ideal for taking hard copies of Mode 1 or Mode 2 screens, or parts thereof. Works with the DMP2000, DMP2160, or any other similar printer, but not with the DMP1.

THE NOBLE ORGAN
Turn your computer into a different kind of keyboard – a musical one. OK the CPC is no Fairlight, but the AY-8-912 can sound pretty impressive if you have light enough fingers.

ZX LOADER*
A routine, that will allow you to read in Spectrum binary files. This will *Not* let you play Spectrum games on your CPC, but it is ideal for transferring data and graphics between two otherwise incompatible computers. *July 1986.*

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is gonna look mighty puny.

But that was the easy bit. Later comes a fusillade of missiles from surface-based cannon, all looking more biological than mechanical. Once again it is the surface-hugging missiles which cause the necessary wipeout.

In front of you is a solid wall. A quick blast reveals that it is not quite so solid, a sort of soft spongy rock. Oh, watch out, those arms are back. Fly between and shoot your way through the blancmange. But the rock grows behind you, keep moving and firing in a straight line.

Then it's into an area of calm. Agh! What's that? The lump to the right is turning into a brain. You need to shoot it in the eye while you dodge the arm. An arm which was particularly difficult to program. If you destroy the brain your ship rotates and the game turns into a vertically scrolling shoot 'em up.

Major project

When he has recovered from the shock of writing Salamander Andrew will return to his major project. This is an assembler, monitor and editing package called PDS (Programmers Development System). PDS is the professional programmers assembler. It runs on an Apricot or IBM-type PC but produces programs for 6502 and Z80-based computers.

Andrew started writing PDS for his own use – "There just weren't any commercial assemblers which were good enough" – but soon realised that he had a saleable product. He enlisted the help of Fouad Katan, a programmer he had first worked with at Silversoft.

PDS is continuing to grow. Soon there will be a communications module which will allow programmers who work apart to send programs and source code over the telephone at very high speeds. That will be followed by a 68000 assembler which will enable programmers who buy the system to write programs for the Atari ST and Commodore Amiga. There will also be a version of PDS to run on the Atari ST.

The system has caused something of a stir among the programming community. The greatest fans of the system are Realtime, who take every opportunity to tell other programmers how much time it has saved them.

Andrew wrote Salamander using PDS, and it is because he is a professional programmer that he knows what other professional programmers want:

"The most important thing is speed. When you are deeply into a project like Salamander you don't want to wait half an hour for the program to assemble and link. Using PDS you can go from changing an op-code to having a Salamander running inside a CPC in less than four seconds.

"It has all the things which games programmers really want. Timing is important. When you have a lot of sprites to move you must take care to miss the screen refresh. This happens every 50th of a second, so loops must take less than this. PDS will automatically measure how long a routine will take to run".

PDS is to a programmer what a word processor is to a journalist, but it's not cheap. The software starts at £500, you need an interface for each of the computers you want to program at £50 a piece, and a twin drive PC at the very least. Fouad and Andrew recommend a hard disc, but then they have been spoiled by using a Compaq 386 – the most powerful PC around. With this system to help him develop games like Salamander, it won't be long before you hear of Andrew Glaister again.

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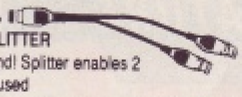
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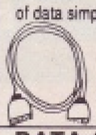
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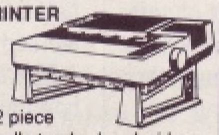
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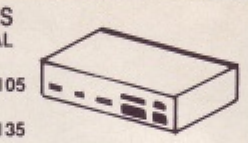


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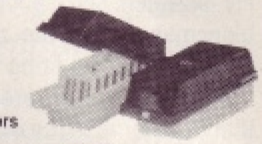
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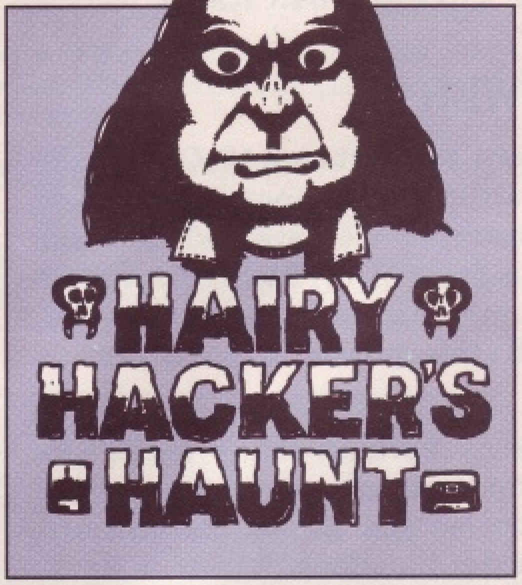
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CURTAIN CALL

Lance Davis gives a repeat performance of his well known Vax impression

BEFORE I start: No, Suz has not had her baby yet. It's a week overdue, hence no Vax. I promise if any news comes in while I am putting Hairy Hackers together, I will tell you.

OK. If you've bought a 6128 lately you'll have got some free discs with it. Adam Todd has picked up on this fact and sent us some pokes for the games on said discs. Off we go then with infinite lives for Ocean's underground arcade adventure, Nomad. Watch how you go with this one, it isn't checksummed. The hex adds up to 2321. And don't forget to put the game disc in the drive before running the poke.

```
1 ' NOMAD disc
2 ' Infinite lives by Adam Todd
3 '
10 MEMORY &203F:a=&F5
20 READ b$:IF b$="end"THEN 40
30 POKE a,VAL("&"+b$):a=a+1:GOTO 20
40 LOAD"nomload",&2040
50 CALL &FC
60 DATA af,32,3a,22,c3,dc,3a,21,f5,00
70 DATA 22,7d,20,21,40,20,11,40,00,01
80 DATA b3,00,ed,b0,c3,40,00
```

Doors of Doom is a survivor from the earliest days of Amsoft. It's a fast and confusing multi-level arcade adventure that somehow still manages to remain playable. Adam's poke will stop you losing energy when you fire your gun and gives you extra energy when you pick up a cup.

Type the poke in, save it to a blank disc, run it to check for typing errors, reset your machine, load the poke, put the game disc in the drive, run the poke.

```
1 ' DOORS OF DOOM disc
2 ' Energy by Adam Todd
3 '
10 MEMORY &203F:tot=0
20 FOR b=&5000 TO &5028
30 READ a$:c=VAL("&"+a$)
40 POKE b,c:tot=tot+c:NEXT
50 IF tot<>&F19 THEN PRINT"Error":STOP
60 LOAD"doorsofd",&2040
70 CALL &5000
80 DATA 11,20,bf,ed,53,9c,20,21,1d,50
90 DATA 01,0c,00,ed,b0,21,40,20,11,40
100 DATA 00,01,95,26,ed,b0,c3,57,00,af
110 DATA 32,78,87,3e,36,32,d0,82,c3,99
120 DATA 7c
```

We will come back to the rest of Adam's pokes after Peter Charles has had his say. Peter has sent in some tips for three Code Masters games. The first is for Super Stunt Man, the game of the making of the film of the stunt. See the photo.

Next up is a rather helpful tip for the Oliver twins' first game for Code Masters, super Robin Hood. While in the game press 6, A and P together and then either E for infinite energy, H for all the hearts or L for all the lifts to be activated.

Finally, to complete the Peter's tiplet triplet, a little cheat for that great racing car game, Grand Prix Simulator. See the other photo.

Peter wants a fiver and help getting to level 2 in Short Circuit. Can't help you there on either score, but I'll send you something nice real soon. Start watching your doormat.

Right. Back to Adam Todd's pokes for the 6128 giveaway games on disc. Here we go with infinite lives for that swinging game, Hunchback, and its sequel, Hunchfront. Don't alter the the line numbers in the first poke, you can leave the credit rems out.

You know the drill by now. Yes you do. Sigh. All right then: Type the poke in, save it to a blank



Grand Prix Simulator – on the title screen type Track and any letter from A to M to start on screen 1 to 13



Super Stunt Man – type Livewire into the high score table to get infinite lives and infinite takes

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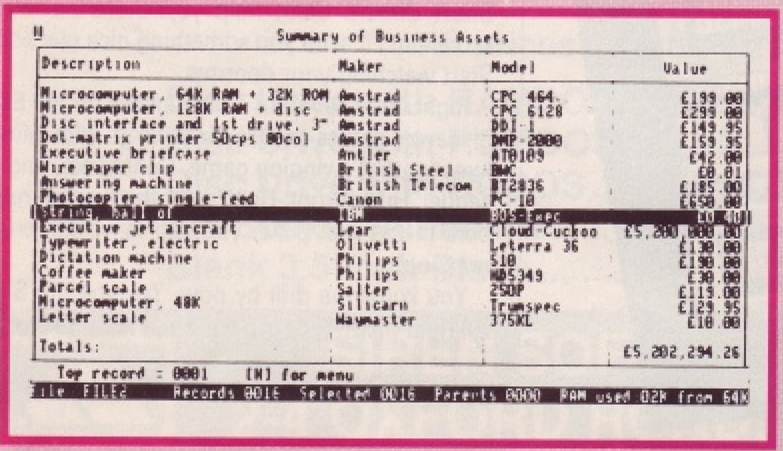
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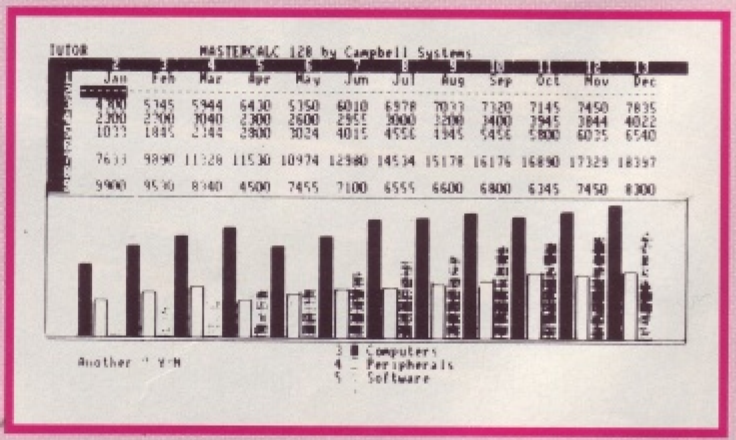
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disc, run it to check for typing errors, reset your machine, load the poke, put the game disc in the drive, run the poke.

```
1 ' HUNCHBACK I disc
2 ' Infinite lives by Adam Todd
3 '
4 CHAIN MERGE "h1loader",5
375 POKE &511A,0
```

```
1 ' HUNCHBACK II disc
2 ' Infinite lives by Adam Todd
3 '
10 MEMORY &176F
20 LOAD"hunchscn.sds",&4000:CALL &4000
30 LOAD"code",&1770
40 POKE &84F6,0:POKE &8880,&C9
50 CALL &8930
```

Adam's last poke is for that smashing schoolboy romp, Tubaruba. You wanna Ferrari? So do I. The following will give you infinite wotsits, infinite oojahs and rid your enemy of his doobries. Or something like that.

```
1 ' TUBARUBA disc
2 ' Infinite energy, lives and enemy
3 ' has no bullets - by Adam Todd.
4 '
10 MEMORY &20FF:tot=0
20 FOR b=&BF00 TO &BF2A
30 READ a$:c=VAL("&"+a$)
40 POKE b,c:tot=tot+c:NEXT
50 IF tot<>&C89 THEN PRINT"Error":STOP
60 LOAD"game",&2100
70 CALL &BF17
80 DATA 21,d1,68,3e,c3,32,08,6a,22,09
90 DATA 6a,c6,06,32,4a,79,af,32,38,71
100 DATA c3,20,63,21,00,bf,22,0c,21,21
110 DATA 00,21,11,00,01,01,00,7f,ed,b0
120 DATA c3,00,01
```

Justin's meagre contribution this month – busy lad, Justin – is an infinite lives poke for the tape version of Elite's new bouncy ball game, Hopping Mad. Not sure if it will work with the disc version. Probably not.

```
1 'Infinite lives for
2 'Elite's Hopping Mad tape
3 '(c)1988 Justin for ACU
4 '
10 MODE 1:OPENOUT "d":MEMORY 1234
20 tot=0
30 FOR n=&80 TO &8F
40 READ a$:a=VAL("&"+a$)
50 POKE n,a:tot=tot+a
60 NEXT n
70 IF tot<>1433 THEN PRINT"Whooops, th
   ere's an error in the data.":END
80 PRINT"Insert rewound Hopping Mad ta
   pe"
90 LOAD "elite":CALL &80
100 DATA 21,89,00,22,d0,0f,c3,a0
110 DATA 0f,af,32,55,43,c3,00,40
120 DATA 4a,55,53,54,49,4e
```

Talking of Justin, it was he who provided us with an infinite lives poke for another Elite game, Ikari Warriors, way back in ... way back in ... well, it was a long time ago.

Obviously not satisfied with immortality, John Gimber has come up with something that turns the grenades in this game into – and I quote – stunningly destructive but very picturesque flame throwers. End of quote, start of poke:

```
1 ' IKARI WARRIORS disc
2 ' Flame throwers by John Gimber
3 '
100 MODE 0
110 MEMORY 4799
120 FOR i=0 TO 15:READ a:INK i,a:NEXT
130 LOAD"screen.bin"
140 LOAD"warriors"
150 POKE 26900,0
160 POKE 26901,0
170 POKE 26902,0
180 POKE 27546,0
190 POKE 27547,0
200 POKE 27548,0
210 POKE 27426,0
220 POKE 27427,0
230 POKE 27428,0
240 CALL 65488
250 DATA 13,6,3,15,16,0,1,2,14
260 DATA 26,24,9,12,21,22,19
```



Nomad by Ocean

Finally, Niall Brady has sent me a memory-editor. For those who aren't sure what one of those is, a memory editor is a nifty little utility that lets you look directly at any part of ram and overwrite what you find there by typing hex numbers or Ascii characters at the keyboard.

It's not the perfect hacking aid by any means, but it sure comes in handy now and then for messing about.

Niall's program sets up a bar command, |E. This takes a parameter – the first address you want to look at – so the syntax, if you wanted to look at ram starting at &4000, would be: |E,&4000.

Once in the memory editor you can move about the screen via the cursor keys. Control-up or Control-down skips back or forward a page. Pressing Return or Enter toggles you between Hex and Ascii mode.

All in all a very neat job that reminds me very much of the |MEDIT command in Arnor's Utopia. Look out for something nice in the post, Niall.

Phew. That's my lot for another... It's a girl. Sorry. *She's* a girl. Vax and Suz have a baby girl, 6lb 3oz. They are going to call her Kate. You'll have to excuse me now, I have to trot off and wet the baby's head. Keep those tips and pokes coming in. Vax will be back next month. Maybe.



The figures in the left hand column of the listing below show it has been checksummed by **ACU Proofreader**, the real-time type-in tester published in the September 1988 issue of *Amstrad Computer User*. You don't need **ACU Proofreader** to be able to run this listing, but having it makes spotting typing errors very easy.

```
[71] 1 ' Memory Editor by Niall Brady
[72] 2 ' Press RET to toggle hex/ascii
[73] 3 '
[D8] 100 DATA 21,7c,93,01,09,90,c3,d1,
     bc,0e,90,c3,10,90,c5,00,6e0
[7E] 110 DATA eb,22,6d,93,11,28,ff,19,
     22,75,93,21,0d,07,22,6f,54e
[81] 120 DATA 93,26,3f,22,71,93,3e,02,
     cd,0e,bc,cd,06,b9,21,00,5a2
[BB] 130 DATA 38,11,80,93,01,00,08,ed,
     b0,cd,09,b9,21,00,c0,06,578
[7B] 140 DATA 19,c5,3a,75,93,cd,f0,90,
     3a,78,93,32,7a,93,3a,79,7a4
[75] 150 DATA 93,32,7b,93,3a,76,93,cd,
     f0,90,dd,21,78,93,06,04,776
[39] 160 DATA cd,98,90,23,23,cd,87,90,
     e5,2a,75,93,11,12,00,19,672
[84] 170 DATA 22,75,93,e1,c1,10,ca,c3,
     54,91,2a,6d,93,11,c2,01,74c
[05] 180 DATA 19,22,6d,93,c3,3c,90,dd,
     2a,75,93,06,12,cd,aa,90,6f8
[91] 190 DATA dd,2a,75,93,06,12,23,23,
     c5,dd,7e,00,cd,1e,91,06,60f
[0C] 200 DATA 01,cd,ce,90,dd,23,c1,10,
     ef,c9,c5,dd,7e,00,cd,f0,992
```

```
[FF] 210 DATA 90,3a,78,93,cd,1e,91,06,
     01,cd,ce,90,3a,79,93,cd,796
[BC] 220 DATA 1e,91,06,01,cd,ce,90,dd,
     23,23,c1,10,dd,c9,e5,01,761
[9F] 230 DATA 08,01,cd,d8,90,e1,23,c9,
     c5,e5,1a,77,23,13,10,fa,786
[6F] 240 DATA e1,01,00,08,09,30,04,01,
     50,c0,09,c1,0d,20,e9,c9,4e1
[17] 250 DATA e5,21,00,00,22,73,93,21,
     73,93,ed,6f,ed,6f,cd,4f,729
[75] 260 DATA 91,fe,0a,d4,1b,91,c6,30,
     32,78,93,7e,cd,4f,91,fe,875
[29] 270 DATA 0a,d4,1b,91,c6,30,32,79,
     93,e1,c9,c6,07,c9,e5,f5,8d8
[FF] 280 DATA fe,00,28,23,f1,26,00,6f,
     11,08,00,c5,4c,7d,06,10,48c
[69] 290 DATA 21,00,00,cb,39,1f,30,01,
     19,eb,29,eb,10,f5,c1,eb,63e
[B0] 300 DATA 21,80,93,19,eb,e1,c9,11,
     80,93,fd,e1,fd,e1,c9,07,992
[5C] 310 DATA 07,07,07,c9,cd,40,93,fe,
     0d,ca,10,92,fe,f0,ca,22,7cf
[DA] 320 DATA 92,fe,f1,ca,43,92,fe,f2,
     ca,64,92,fe,f3,ca,87,92,ba4
[B9] 330 DATA fe,f8,ca,1d,93,fe,f9,ca,
     7a,90,fe,fc,c8,f5,3a,77,ba3
[D3] 340 DATA 93,fe,00,20,51,f1,fe,61,
     d4,51,93,fe,47,30,c5,fe,942
[92] 350 DATA 30,38,c1,cd,03,92,2a,6f,
     93,24,22,6f,93,cd,4f,91,6ac
[57] 360 DATA 47,cd,40,93,fe,61,d4,51,
     93,fe,47,30,f4,fe,30,38,8cd
[97] 370 DATA f0,2a,6f,93,25,22,6f,93,
     cd,03,92,80,f5,2a,71,93,76a
[7C] 380 DATA cd,75,bb,f1,cd,54,93,cd,
     5d,bb,2a,6f,93,7c,fe,3d,96a
[A7] 390 DATA d2,aa,92,c3,54,91,f1,cd,
     5a,bb,f5,2a,6f,93,cd,75,9ec
[E7] 400 DATA bb,f1,cd,54,93,cd,ea,91,
     18,e0,06,02,4f,cd,4f,91,8a4
[1A] 410 DATA e6,0f,fe,0a,30,04,c6,30,
     18,02,c6,37,cd,5a,bb,79,699
[F0] 420 DATA 10,ee,c9,cd,5a,bb,d6,30,
     fe,0a,30,01,c9,d6,07,c9,857
[46] 430 DATA 3a,77,93,b7,28,07,af,32,
     77,93,c3,54,91,3e,01,c3,6bf
[2D] 440 DATA 17,92,2a,6f,93,2d,7d,fe,
     01,da,54,91,22,6f,93,2a,68b
[2E] 450 DATA 71,93,2d,22,71,93,2a,6d,
     93,11,ee,ff,19,22,6d,93,6ba
[98] 460 DATA c3,54,91,2a,6f,93,2c,7d,
     fe,1a,d2,54,91,22,6f,93,770
[DC] 470 DATA 2a,71,93,2c,22,71,93,2a,
     6d,93,11,12,00,19,22,6d,475
[EE] 480 DATA 93,c3,54,91,2a,6f,93,25,
     25,25,7c,fe,07,da,f5,92,7b8
[0D] 490 DATA 22,6f,93,2a,71,93,25,22,
     71,93,2a,6d,93,11,ff,ff,6d6
[24] 500 DATA 19,22,6d,93,c3,54,91,2a,
     6d,93,11,01,00,19,22,6d,4c7
[37] 510 DATA 93,2a,6f,93,24,24,24,7c,
     fe,3d,d2,aa,92,22,6f,93,714
[38] 520 DATA 2a,71,93,24,22,71,93,c3,
     54,91,2c,7d,fe,1a,d2,e7,79a
[D7] 530 DATA 92,22,6f,93,2a,71,93,2c,
     22,71,93,3e,07,32,70,93,5b0
[DC] 540 DATA 3e,3f,32,72,93,c3,54,91,
     21,19,3a,22,6f,93,26,50,56a
[9C] 550 DATA 22,71,93,2a,75,93,11,7c,
     fc,19,22,75,93,2a,6d,93,64e
[7C] 560 DATA 2b,22,6d,93,c3,3c,90,21,
     01,07,22,6f,93,26,3f,22,4b0
[20] 570 DATA 71,93,c3,3c,90,2d,7d,fe,
     01,da,c8,92,22,6f,93,2a,7be
[EF] 580 DATA 71,93,2d,22,71,93,3e,3a,
     32,70,93,3e,50,32,72,93,5c9
[6F] 590 DATA 2a,6d,93,11,ff,ff,19,22,
     6d,93,c3,54,91,2a,75,93,74e
[DC] 600 DATA 11,7c,fc,19,22,75,93,11,
     3e,fe,2a,6d,93,19,22,6d,5eb
[B0] 610 DATA 93,c3,3c,90,cd,75,bb,cd,
     81,bb,cd,06,bb,c3,84,bb,9b8
[92] 620 DATA 3a,77,93,fe,01,28,05,2a,
     6f,93,18,e8,2a,71,93,18,5e2
[FC] 630 DATA e3,ee,20,c9,2a,71,93,24,
     22,71,93,2a,6f,93,24,24,6a6
[19] 640 DATA 24,22,6f,93,2a,6d,93,77,
     23,22,6d,93,c9,00,00,00,4f7
[EE] 650 DATA 00,00,00,00,00,00,00,00,
     00,00,00,00,00,00,00,00,000
[6E] 660 MEMORY &8FFF
[AD] 670 n= 16:a=&9000:l= 100:WHILE l<
      660:GOSUB 680:WEND:GOTO 720
[26] 680 cs=0:FOR x=1 TO n:READ v$:v=V
     AL("&"+v$):POKE a,v
[B5] 690 cs=cs+v:a=a+1:NEXT:READ c$:c=
     VAL("&"+c$)
[3B] 700 IF c<>cs THEN PRINT"Data erro
     r in line ",l:END
[F0] 710 l=l+10:RETURN
[F9] 720 CALL &9000:' initialise RSX
[4B] 730 |E,0
```

AMSTRAD Computer User BACK ISSUES

1988 – March: Dan Dare II – full map. Family tree software review. Scruples from Virgin. Educational software the truth home to roost. Microstuffer – printer buffer. Mastering INSTR.

April: Cage rom the ultimate viewdata tool, Basic Tutor on interrupts, Flying Shark, PAW adventure creator, Hewson's Anarchy, Part one of Pat Winstanley's writing adventures, Isobot listing.

May: Part one of Jill Lawson's art lesson, Adventure writing adding a plot, ATF full review, Brainstorm pokes, Basic Tutor On Gosub, Polar listing.

June: Part one of Auntie John's machine code,- Basic Tutor on boolean logic, Adventure writing final part, Micro Music Creator, CP/M+ on rom, Rodos xtra, Nebulus full review, Cybernoid, Gothic, L.A. Swat, Revenge of Doh, Driller solution, Creeper lizting, AI nought and crosses, Amstrad espionage.

July: The agony of creating Rimrunner, AJ reading the keyboard, Reflections lizting, Brunword 6128, Wops, Origin of the CPCs, Cybernoid map, Print Master patch, reviews of Enlightenment, Stairway to Hell, F.M. Simulator and Pirates!



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August: Beyond Ice Palace guide, Fergus McGovern interview, LC-10 colour printer, Maxam 1.5, Foster on printers, BT on loops, AJ on scrolls, PLS listing, reviews of Bad Cat, Crazy Cars, Spindrone, Brainstorm, Super Stuntman, Demon's Revenge, Mask III, Federation and Not a Penny More adventures.

September: Rom roundup, Dark Side guide, Basic Side guide, Basic Stardodger, Graphics using the firmware, Basic Tutor on arrays, Proofreader listing, PEP Talk and Protext Office reviewed, Mindfighter and Smashed adventure reviews, Picture Power with Jill Lawson.

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SHACKLED

YOUR friends have gone and got themselves locked up and it is up to you to free them. The usual technique of getting a good lawyer, raising bail and greasing palms wouldn't make a very good action game so off you go, armed to the molars with small brown projectiles which look for all the world like chocolate chip cookies.

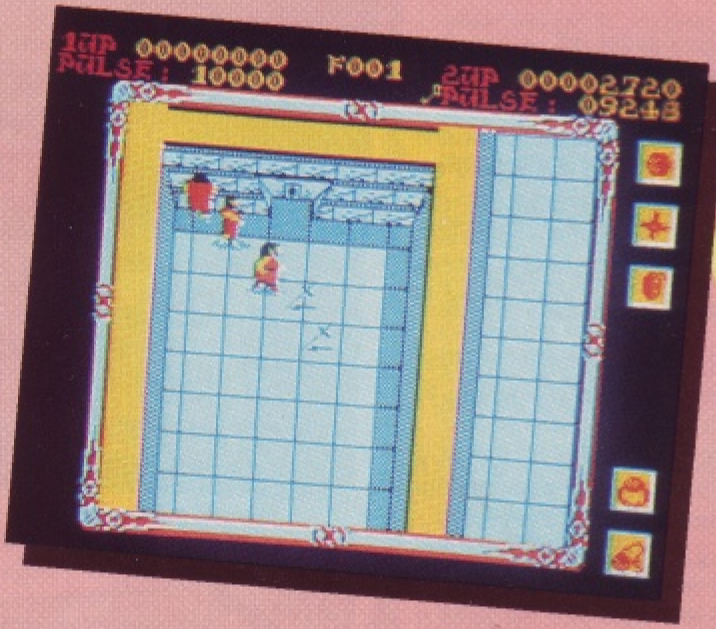
This ordinary county jail is full of nasties outside the cells, all intent on doing you very little good. Your killer cookies make short work of them, but this in no way furthers your mission of mercy.

Dotted about the place are doors which can be shot – a variety of things lurk behind them. There could be an extra weapon token to give better attack, defence or speed (as in Gauntlet). It could be one of your pals, who tag along adding extra firepower and different weapons à la Salamander).

Or you could uncover a nest of ninja, all of whom are determined to ninj you to the best of their ability. At least when the ninja have been ninjed you get to keep the small change which falls from their pockets.

Once you have freed as many of your pals as you can be bothered to, you have to escape the level by finding the door cryptically marked EXIT. A harder level ensues, with more nasties, more friends and less door keys going spare.

The game is a multi-loader, but is handled quite well despite this. Levels are loaded eight at a time in about 20 seconds. If the first set has not been completed, it remains in memory. The graphics are adequate, if a little badly defined, and the sound is workmanlike.



Colin

I DISLIKED the invisible monsters (bugs?) which didn't appear but harmed you all the same. The playing area is a bit wee, and unless you have the go-faster icon, gameplay is at Eeyore-on-morphine speed.

Not dire by any manner of means, but a definite try before you buy case.

13/20

Author: Data East for US Gold
Price: £9.99 tape, £14.99 disc

NINJA SCOOTER SIMULATOR

Colin

Buy a pair of sunglasses for this one. Instead of the usual washed out greens and blues, you will be amazed to see bright oranges and yellows being used to give a touch of colour. I have a suspicion it's too easy though – the first time I tried it, I completed eight levels.

18/20

YOU are in charge of the Dream Scooter. Despite its grand name, this conveyance is a miserly affair without even an engine to its name. All you have to do is pedal your way along a scrolling pavement and cross the finishing line as quickly as possible.

There are, of course nasties to avoid, and they are rather original. In the first level there are holes in the road, gates which you have to jump over and ramps.

To gain points you whizz up the ramp as fast as possible then waggle the joystick like mad when you are flying through the air. By doing this the scooter performs rolls and somersaults. The more acrobatics, the more points.

If you manage to land on the wheels, the word RAD appears momentarily over the scooter and you gain an extra 100 to 1,000 points. If you land on your head, you pick yourself up automatically, but lose time.

Ridged bits of pavement like cattle grids cause the scooter to vibrate and slow down when you run across them, alarm clocks give you a few extra seconds when you run over them, and square pulsating things give you powers like Superman.

The second and subsequent levels have more cattle grids, gates, pulsating things, plus cars, skulls, mad gun-totin' cowboys and skateboarders who rush towards you and try and knock you over.

After the first five levels things suddenly become difficult. The levels become longer, the number of nasties doubles, and the number of cattle grids quadruples.

The best thing about this game is the graphics. They are brilliantly coloured and detailed and there is no problem with a green screen. The scrolling is jerky, but the game is so fast you don't really notice this. The sound is excellent – a three-channel tune (no effects) which plays continuously. All in all, an outstanding budget game.



Author: Probe for Silverbird
Price: £1.99 tape

BIONIC COMMANDO

A ZARGON missile has two ends – a right end and a wrong end, the latter being the one which hit Earth first. This had the instant effect of demolishing most of the buildings and turning virtually all the folks into doner kebabs.

Ten years have elapsed since the apocalypse and the Bionic Commandos are ready to send the aliens home as stains on blotting paper. These biomechanical bozos have two main attributes – an extending grappling arm and a very large gun.

The bionic arm allows the wearer to grab nearby platforms in order to climb up to them or swing from them. It also allows bonus weapons to be caught.

The first level is a fairly standard blast from bottom left to top right of a smoothly scrolling treescape. Bees live in the trees and get rather uppity if their hive is tampered with.

Some branches are rotten, and snap, causing a new commando to be parachuted in if a truly enormous fall occurs. Mines are dotted about and prove to be fit for the purpose for which designed, to misquote the Trade Descriptions Act.

The next level is the entrance to the aliens' base, situated under a castle. Wall mounted cannon and electric wires make this level a tad difficult for your average power-assisted shock trooper. Kamikazes and rock-throwing super aliens rapidly cause the trigger finger to buzz.

Three more levels await Our Hero, each chockful of aliens willing to prove that *they* got there first.

Bionic Commando is almost a direct Spectrum conversion, but for once it has been done quite well.

The graphics, although reasonably detailed, have no colour at all, and are fitted into the familiar shrunken screen. Colour and green screen versions live on opposite sides of the tape or disc.

Sound is merely adequate, despite the fact that it was done by one of the Spectrum's top soundsmiths.

Author: Software Creations for Go!
Price: £9.99 tape, £14.99 disc



Colin

THIS game is best played with a very solid joystick while affecting an outrageous Mexican accent, shouting phrases such as "Die, alien scom peegs!"

The graphics are pretty dire, but don't really detract from a fun blast-and-climb game. Although Bionic Commando is rather badly animated, the aliens move nicely.

It pains me to say so, but this game could be described as completely brill.

If the graphics were better, it would be utterly halibut.

EUROPEAN 5-A-SIDE

EUROPEAN 5-a-Side is a bit like sawn-off table football viewed from above with barriers around the side to avoid throw-ins and other complexities. In a way it is fairly faithful to real five-a-side, as long as it is being played by creatures who vary in size with direction.

Two types of kick are possible – the low pass, which is handy for scoring, and the high lob, which is handy for not very much at all. When the ball is lobbed an impression of height is given by the ball growing to golf ball size, obscuring any players who may happen to be underneath, then shrinking to normal.

The game can be played by one or two players over 6, 10 or 20 minutes. While the two-player game can be a great strategic fight, the single player against the computer is a bit of a no-no.

It would seem that the opposition are quite obviously ex-Glasgow Rangers players since they move in a semi-random fashion, usually towards their own goal.

At least the goalie is good; he, she or it (this is an equal opportunities review) offers the only resistance to the players' George Best-like storm up the pitch.

Despite the skilled goalie, scores of 8-0 for the 10 minute game are quite possible, so as a one-player game its appeal would wane very rapidly. In this respect, European 5-a-Side scores badly against other football games, but its simple and speedy dual-play mode compensates reasonably well.

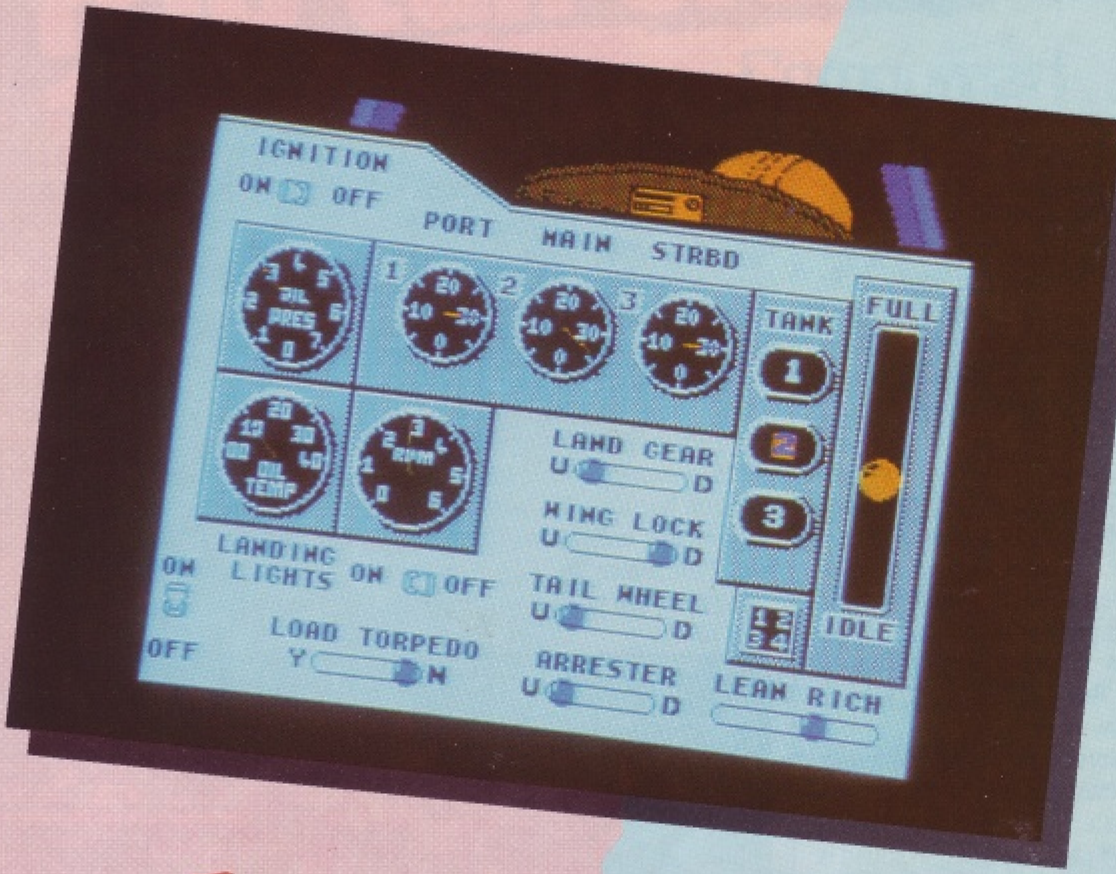
Authors: Timothy Closs and Andrew Rogers for Silverbird
Price: £1.99 tape



Colin

EUROPEAN 5-a-Side is not the best footy game around, Match Day 2 still holds that accolade. The addition of an extra human makes the game quite neat – maybe I'll go as far as "well wicked" – but the budget flickers and judders are still noticeable.

NIGHT RAIDER



IT's late May 1941. You are a dive bomber pilot aboard HMS Ark Royal. Your mission is to sink the Nazi battleship Bismarck.

Your plane starts off on deck. Although you are the pilot, you can become the tail gunner, the engineer or the navigator by pressing a key.

To take off you have to move certain levers on the engineer's screen and release the brakes. You then return to the pilot's screen, pull the joystick back, and you're airborne.

When in the air you will see lights reflecting off the water, enemy aircraft attacking and shells exploding around you. In defence, you can fire the machine guns in front of the cockpit or switch to the tail gunner's screen if the enemy is attacking from behind.

You will also be under attack from E-boats and the dangerous U-boats, submarines which the navigator cannot see. They fire torpedoes at the Ark Royal and anti-aircraft guns at you.

While evading all these dangers, you have to keep watching the navigator's screen in order to spot the Bismarck and get advance warning of enemy attacks. The display is updated as you watch.

You must also check the engineer's screen to make sure you are not running out of fuel or having mechanical problems, and keep an eye on the altimeter, compass, artificial horizon, air speed indicator and other instruments on the control panel. A light will flash if something needs attention on one of the other screens.

If something goes wrong in mid-flight you can return to the Ark Royal for repairs, refuelling and restocking ammunition.

Landing on the deck is the most difficult part of the game. You have to be very careful about rate of descent and altitude otherwise you will crash into the deck, crash into the sea, or overshoot and have to turn around and try again.

If you have to ditch, do it gently and you will be rescued.

Choosing a flight path is very easy. You just select a point on the navigator's screen, return to the pilot's screen, line the aircraft's bearing up with a mark which appears on the compass and you will automatically fly towards the point you chose.

If you manage to keep going for long enough in the correct direction you will eventually find the Bismarck. It is well defended with radar, searchlights and anti-aircraft guns, so you will have to fly very low over the water, release your torpedoes, then return to the Ark Royal.

If you are lucky the Bismarck will have sunk, the Ark Royal will have survived, and you will have won.

This all sounds complicated and difficult, and so it is. However, there is a very good practice mode which allows you to try out the difficult parts such as takeoff and landing before attempting a full mission.

There are five levels of difficulty, with more and more attackers on each level.

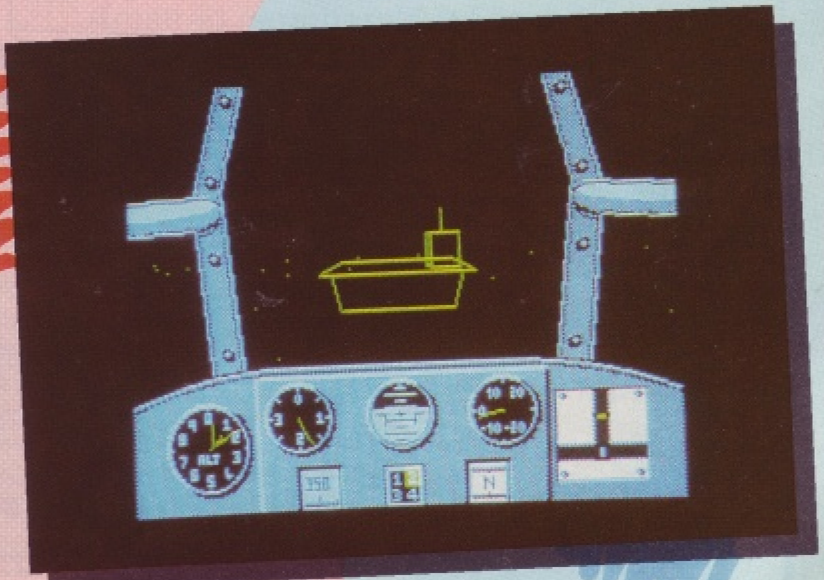
Author: Dave Pridmore and Greg Holmes for Gremlin Graphics
Price: £9.99 tape, £14.99 disc

Nigel

WAR game programmers often put a lot of effort into historical accuracy and little into presentation, but this is a spectacular exception.

The graphics are superb. The dials on the control panel are well animated, the artificial horizon rolls convincingly – but the engineer's screen is the best. There are various levers to move and switches to flick, and all you need do is move an arrow to the correct place, press Fire, and everything happens quickly and smoothly.

20/20



Liz

If you thought war games were only played with lead soldiers on giant landscaped tables by retired colonels reliving their past victories, think again. This program brings everything right up to date.

It's as difficult as you want it to be, with excellent arcade sequences and a lot of strategy.

20/20

Colin

I PLAYED Halls of the Things once, then gave up. Why? Because there were about 20 keys you could press and I kept getting confused. Night Raider is so incredibly easy to control and is so addictive it deserves to become popular.

That might encourage more companies to produce the decent war games that Arnold needs.

18/20

FOOTBALL MANAGER 2

LOADING is slow. After what seems several aeons – give or take an era – the delightful strains of Sousa's The Stars and Stripes Forever ring out. This tune is known to some as Be Kind to Your Web-footed Friends but is better known as Here We Go, Here We Go, Here We Go. The subtlety of the lyrical nuance is delightfully understated.

After choosing keyboard or joystick, a list of teams is offered. Obviously Mr Toms – the originator – uses an obscure method of computer telepathy at this stage because the team you will want is not on the list; the omission of Ardrossan Winton Rovers is a great loss to humanity.

Sponsorship is the next offering. This allows you up to £50,000 instant cash. It will need to be spent fairly early on, as the initial squad is desperately small.

The next important business is the team position selection. The new system allows marking of the opposition and half-time substitution, at which time the team can be reshuffled if improvements are deemed necessary.

The opposition positions and skills are shown, and you can either match skill with skill, or attempt to exploit a weak spot.

Next comes the match itself. Football Manager 2 gives the player as much control over the playing of the match as the original, this being none at all.

But gone are the block graphics and slow screen update. Instead, neatly animated weeny players rush about in a frenzy. They stick closely to their positions, well enough to be identifiable to a man.

The pitch is split into three parts – defence, midfield and attack – and flicks, rather than scrolls. This allows faster action, and is much easier to program. Players pass and tackle with varying degrees of success, and move at roughly scale speed.

Only abbreviated highlights of the game are shown, each match lasting just long enough to hold the interest without boring. The results and league table are printed out at the end of the match.

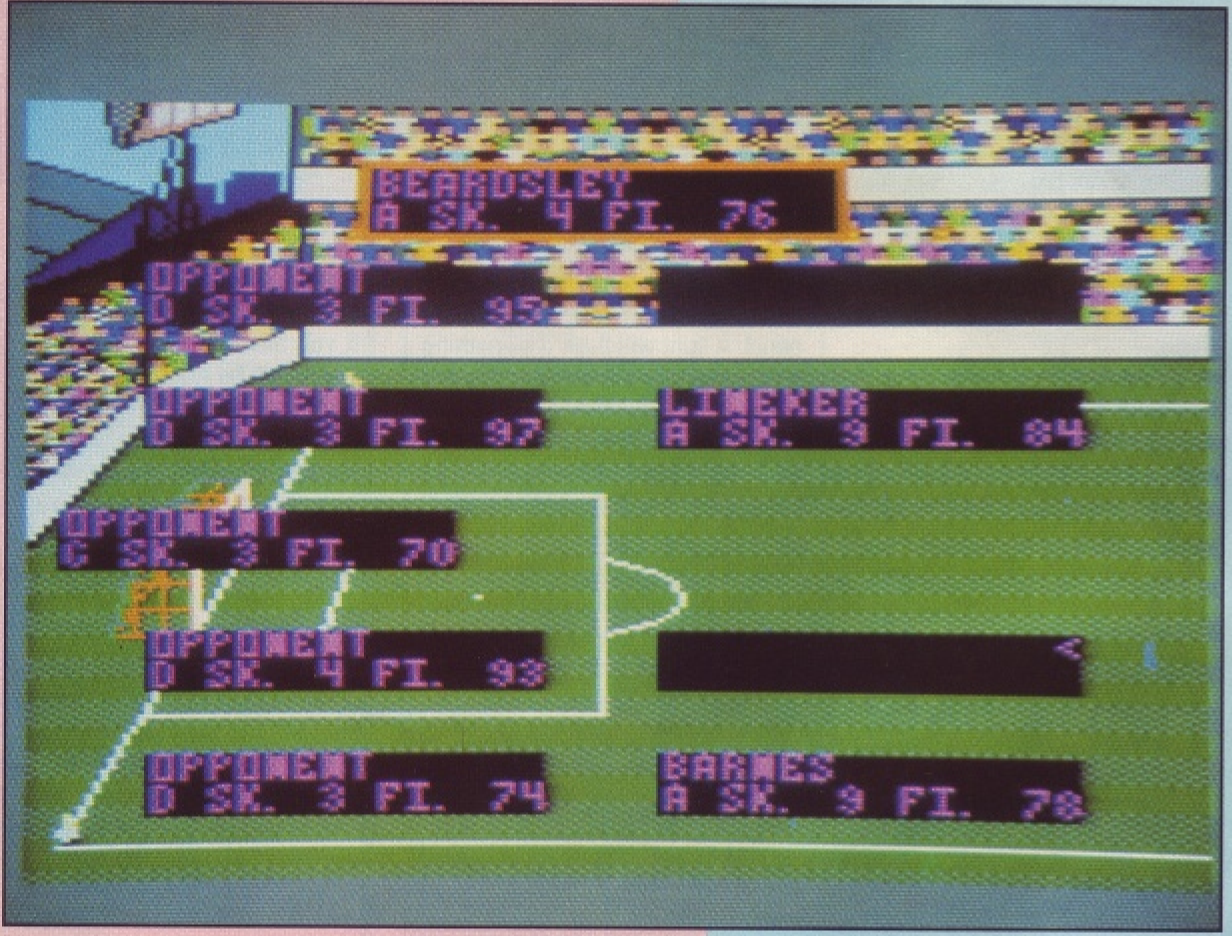
The team can be given extra passing training. Players can be bought and sold, but bids are competitive, so you always have to stump up more than you think. Too many low bids, and the player is withdrawn from the market. Bargain basement Maradonas are out of the question.

Very little of the actual running of the club is given to the manager. Far more emphasis is put on playing the matches, the eventual aim being the treble of league and two cups. This will take several weeks, so a save game option is welcome.

The realism is quite astonishing; if a player is not completely fit he can be seen to be playing worse than usual.

The game is surprisingly full of features for a single-load product and the addition of various skill levels ensures that FM2 will stay off the back shelf for months.

Author: Addictive Games for Prism Leisure
Price: £9.99 tape, £14.99 disc



Colin

IMAGINE Football Manager without the bad bits. This certainly isn't it, but it is reasonably close. The graphics and sound are strictly functional, but who buys this sort of game for visual appeal?

I haven't yet found any cheats possible with this game – there is no opportunity to take out a huge negative loan, as in the original. But you do always get the same team line up. Lineker? In the fourth division?

17/20

Nigel

THIS is going to be completely free of football cliches. Nobody is going to be over the moon, sick as a parrot, giving one hundred and ten percent or even sticking their neck out. As one who never watches Match of the Day, these banal sayings mean nothing to me.

If you liked the original, buy this. If you like a challenge over a long period or are football crazy, buy this. It's well written, well presented, and (ahem) well wicked.

19/20

Liz

MENU control can be rather finnicky, and there is no option to go back a menu after an error. Watching the matches is quite fun, a pencil and paper is required to jot down who is playing where.

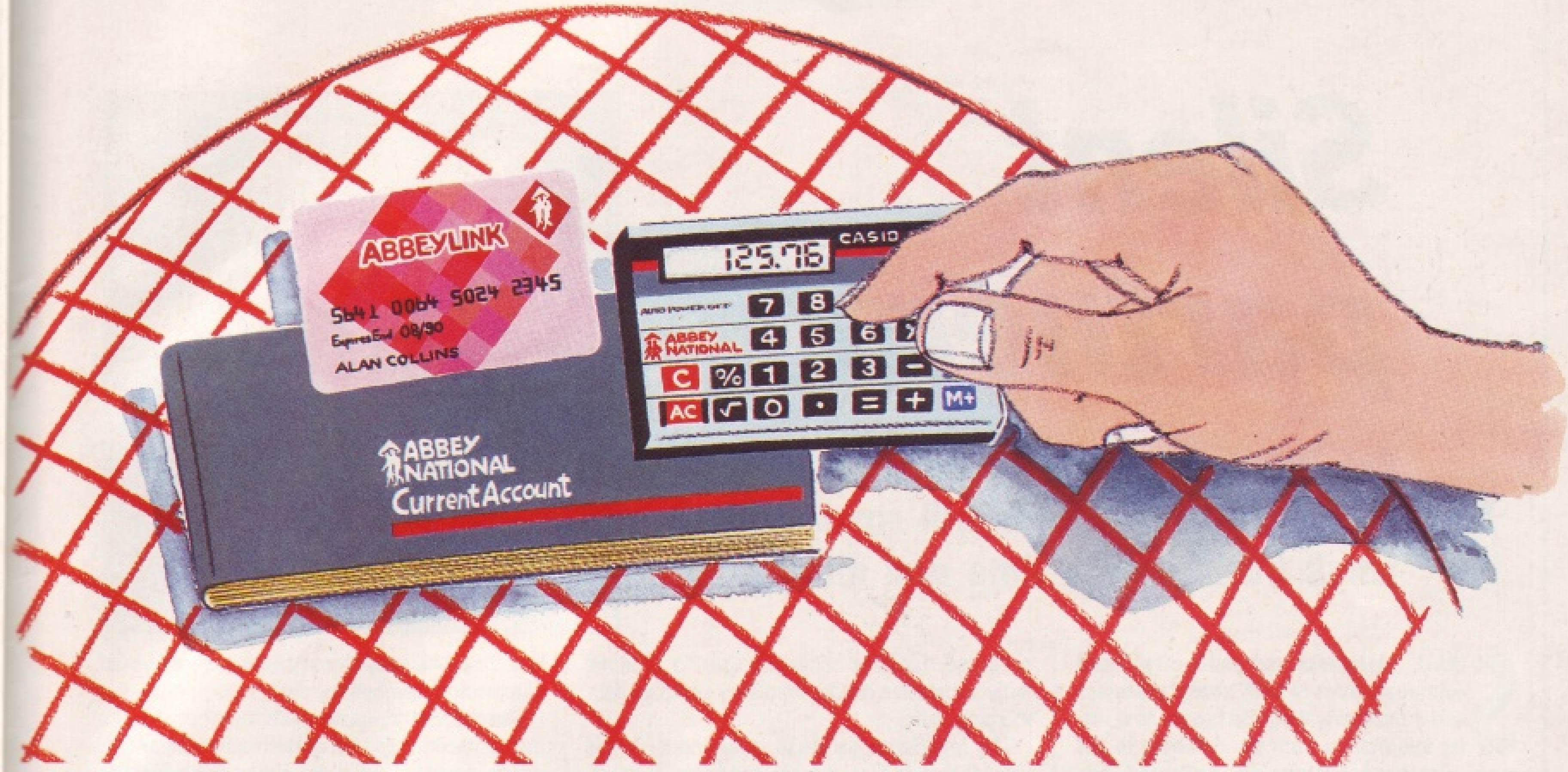
Football Manager 2 is a very clever game. Note that I have toned the superlatives down to ensure that this box does not become cheap advertising copy for Addictive Games.

17/20

YOU START WORKING FOR MONEY.



Y. MONEY STARTS WORKING FOR YOU.



Now there's a better way to handle your money.

An Abbeylink Card with an Abbey National Current Account.

The Abbeylink Card lets you get your money out from a national network of cash machines 24 hours a day, seven days a week.

Our Current Account is like a bank current account – only better. You don't just get the usual things like a cheque book, you'll also get interest on your money. What's more, you won't pay a penny in transaction charges. Not many banks can offer you that.

If you're 13 or over, you can get an Abbeylink Card and you can have a Current Account at 16. If you're 18, you can also apply for a cheque guarantee card, overdraft or even a personal loan.

So just fill in the form below, take it to your local branch and ask about an Abbey National Current Account and Abbeylink Card.

To help you keep tabs on your money, we'll give you a complete kit which includes a calculator.

But hurry. Calculator stocks are limited.

GET A FREE CALCULATOR WITH YOUR ACCOUNT.

For your free Calculator, fill in this form and take it to your local Abbey National branch. Your Calculator will then be sent to you by post when your account has been opened.

MR/MRS/MISS SURNAME

FORENAMES

ADDRESS

POSTCODE

AGE DATE OF BIRTH DATE MONTH 19 YEAR

I'M AT SCHOOL/COLLEGE/WORKING (Delete as appropriate)

DO YOU HAVE A BANK CURRENT ACCOUNT YES/NO

DO YOU HAVE ANY OTHER ABBEY NATIONAL ACCOUNTS YES/NO

Office Use: ANCA A/C NO

BRANCH

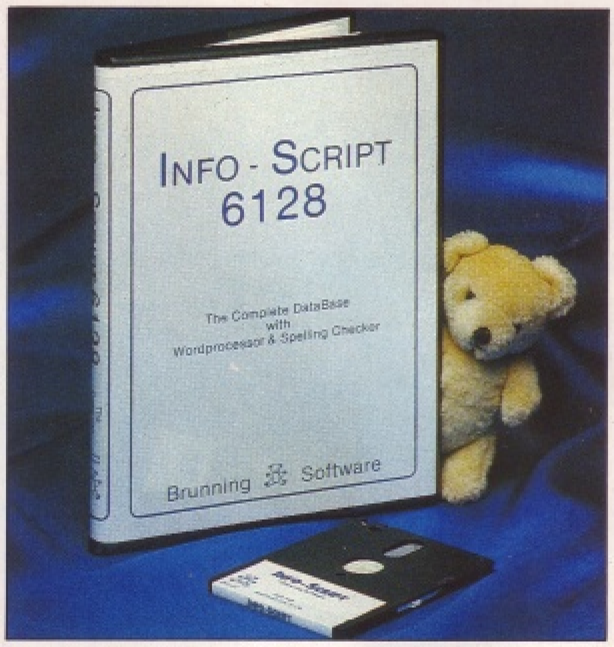
A0709M This offer closes 31st December 1988. (Please allow 28 days for delivery.)

ABBEY NATIONAL

THE MOST CURRENT ACCOUNT

Silent partners

Pat Winstanley finds a three pronged package that will save the small businessman time and money



SMALL businesses and clubs often need continual access to both a word processor and a database, with the facility to transfer information from the database to the word processor. Brunning Software has designed Info-Script for just this purpose.

BrunWord, BrunSpell and Info-Script have been integrated into one package so that the different sections may be accessed from each other without the bother of having to load another program. If a 256k expansion is fitted, all three programs can be available in ram simultaneously.

The package was put together for the benefit of users who initially are concerned only with the simpler aspects of mail merging. Once the basics have been mastered however, additional, more advanced, facilities allow the user to produce fairly impressive results from very complex data merging paths.

The Info-Script database is arranged in the usual way with files, records and fields. A standard 6128 can hold about 1,000 names and addresses, rising to about 3,000 if that 256k memory expansion is fitted.

It is also possible to hold around six pages of text in BrunWord at the same time. Each record can contain a maximum of 23 fields of up to 30 characters.

Extra flexibility for data storage is provided by the ability to link different records together. Two methods are used for this – records with identical data in the first two fields are classed as parents and sons, while apparently unconnected records linked with a special command are known as parents and daughters.

The manual suggests that sons be used as archive records, like full cards in a manual system which are put in the back of the drawer when a new card is prepared. The full records can be viewed with a couple of key strokes from the current record but are not listed on the current record summaries.

A suggested use for daughters is to link names and addresses of suppliers with the records of the stock held. These, too, can be accessed easily from the main record.

Although only one data file can be held in memory at a time, it may be split into sections by the use of record markers. Up to four sections of the file can be defined, either exclusively or overlapping. Thus a club list could be split into full members, defaulting members, local members and out-of-town members. Each group may be viewed, printed or saved to disc.

For most users the first step with Info-Script will be preparing address labels from the database records. Assuming the standard field layout has been retained, this is simply a matter of picking the required records, marking them for use, loading the printer with labels and pressing a couple of keys.

If you want to change the layout of the address label, perhaps to add a customer number at the top, the relevant template is loaded from the ram store, adjusted, then saved back again before use.

In addition to address labels, templates for a simple letter and invoice are included in the package. Brunning may release a disc later with a wider variety of templates for those users who either can't or don't wish to prepare their own.

```
                                 16 Lever Street
                                   Potter
                                     Cambridge

&A

Dear &N,

We are writing to let you know that your membership is
now due for renewal. Please send £&J12 before &11 if
you wish to continue to receive our magazine.

                    Yours Sincerely,


                    Fast Sale Ltd
```

Figure Ia: Example payment demand template

```
                                 16 Lever Street
                                   Potter
                                     Cambridge

Mr P Jones,
Bettering Ltd,
8 London Road,
Oakford,
Sussex,
SP1 5TJ.

Dear Mr Jones,

We are writing to let you know that your membership is
now due for renewal.  Please send £48.50 before 1,6.86
if you wish to continue to receive our magazine.

                    Yours Sincerely,


                    Fast Sale Ltd
```

Figure Ib: The resultant letter after mail merging

Real power

Having organised the database, the real power of the system is ready for use. Most small businesses and clubs use a fairly constant layout for letters and invoices with only names, addresses and balances varying from one customer or member to another.

Standard letters can be prepared and saved using BrunWord, then personal details for each recipient inserted during the printing stage.

BrunWord knows where and what to insert by the use of a different set of markers embedded in the text.

Figure Ia shows a simple payment demand template with insert markers at appropriate points. This is what you would type into the word processor. Figure Ib shows the resulting letter after a member's details have been inserted and the letter printed out. The marker &11 tells BrunWord to print the details held in field 11 of the current record.

Developing the idea further, Figure IIa shows an invoice pattern and Figure IIb the resulting invoice. Here the insert markers are a little more complex, reflecting the need for calculations to take place on some of the data – such as working out VAT. The marker &Z%12*4 tells the system to work out a percentage, the rate being held in field 4 of the current record and the value to be worked on being held in field 12.

The VAT for each item on the invoice is stored in a running total, while the marker itself is replaced during printing with a figure representing the VAT rate. This feature could also be used to calculate discounts for prompt settlement or perhaps show the balance on a savings scheme or credit account.

The next level of complexity is conditional printing, where a small file is prepared which checks for the presence of a label in a particular field of the current record then decides which text file should be loaded for merging. Thus new customers might have a letter advising of a lower credit limit than that sent to more established customers.

Another application could be tagging records according to their purpose, for instance invoices and receipts. Info-Script will automatically load the correct template for the data, which could itself hold more conditional markers, and so on.

Data from more than one record can be printed on the same template by using a repeat marker which keeps going until all the data is used up or BrunWord runs out of memory. This would be handy for listing different items on an invoice or perhaps printing stock sheets for different groups of items.

Conclusions

The manual isn't the best example of its kind – it can be downright hard work at times – but all the information is there if you dig hard enough. Getting started in the simpler concepts is very easy, with key by key examples to take you through the basic features.

A sample data file is included for you to inspect, containing most of the features available both for simple and advanced use. But it isn't enough for a program to be supplied with demonstration files if those files are not clearly explained.

I found that the only way to make sense of Info-Script was to persevere until, after a great deal of trial and error, and lots of wasted paper, I finally figured out what was going on.

Although well over 40 pages long, the manual's organisation means plenty of skipping back and forth to gather all the available information on a subject. Filing and Insert markers are referred to similarly in the manual, which can be very confusing at first, and, as so often happens, no index has been included.

As the package is primarily aimed at the small business and clubs it is unlikely that many users will reach the limits of this system. For the average user who is more concerned with saving time and energy when writing a batch of similar letters, or anyone regularly preparing mail shots, Info-Script is a good choice.

```
                 Churchwood Computers
            2 Church Mews. London. W6 7HH
               Telephone 01 211 0006

                                                    &ZD
&ZA



                              ORDER

Please supply the following:-

          Description               Unit Price  Qty  Price Ex VAT    VAT
                                    £                £               %
                                    &Z10    &Z11  &Z+12              &Z%12*4
&R4Z1          &Z2        &Z3           &Z10   &Z11   &Z+12            &Z%12*4
&G"&Z1             &Z2       &Z3
*
                       &ZT       TOTAL Ex VAT  =  £000000.00
                       &R4Z+V &ZV      VAT     =  £ 00000.00

                       &ZT       TOTAL Inc VAT =  £000000.00



                      Signed.....................
                       (For Churchwood Computers)
```

Figure IIa: Example invoice pattern

```
                 Churchwood Computers
            2 Church Mews. London, W6 7HH
               Telephone 01 211 0006

Mr H Abbott,
11 Acorn Crescent,
Chichester,                                       31.5.88
CR1 6TR.


                              ORDER

Please supply the following:-

          Description

                                    Unit Price  Qty  Price Ex VAT    VAT
                                        £                £            %
Computer      Amstrad   CPC6128-M
Disc          Amstrad   CF-2          234.75     3     704.25        15
Disc Drive    Amstrad   FD-1            2.34   500    1170.00        15
Joystick      Amstrad   JY-2           78.22     2     156.44        15
Modulator     Amstrad   MP-2           11.70     4      46.80        15
Printer       Amstrad   DMP2000        23.44     1      23.44        15
RS232 Interf  Amstrad   06071         124.43     2     248.86        15
                                       46.92     3     140.76        15
                                                                     15
                         TOTAL Ex VAT  =  £  2490.55
                               VAT     =  £   373.58

                         TOTAL Inc VAT =  £  2864.13



                      Signed.....................
                       (For Churchwood Computers)
```

Figure IIb: The invoice after mail merge

Info-Script costs £46.
The package includes BrunWord, BrunSpell and the Info-Script database. It is supplied on disc only and works on the 6128 or 464/664 with extra ram.
Info-Script is available from Brunning Software, 34 Helston Road, Chelmsford, Essex, CM1 5JF (Tel 0245 252854 24hrs)

Answering the call to the bar



Auntie John spends some time RSXercising

HELLO to everyone, and especially to Fiona's father who sneaks a look at this magazine every month, possibly in the hope that I'll mention him. He's got no chance. The firmware call we are going to look at this month is the one that sets up what we in the machine code trade call an RSX.

Remember those three letters – mentioning them at a party will gain you vital street cred points. But remember, if you do mention them you might have to explain what they stand for, which can be a problem. Until now, that is, because I'm going to explain what they are and what to do with them.

RSX stands for Resident System eXtension. Aha! It all becomes clear, doesn't it. No, seriously, RSXs are no problem. In the simplest sense they are just machine code subroutines that you can call from Basic without having to remember nasty hex addresses. Every CPC has at least one RSX built in – try typing |BASIC. Oops. Did I mention that it resets the computer?

Other RSXs that are supplied with disc-based machines are |TAPE, |DISC and everybody's favourite |CPM. (Bar Completely Pretentious Mnemonics).

Using our own RSXs we can tack extra commands on to Basic. You have probably come across utility programs that add commands like |GPEN and |FRAME, well now you can add some of your own.

To set up the RSXs you must first give the computer a list of the commands you are going to use. This list must be set out in a particular way else nasty things will happen. (Crash! Oh bother did I save that first? What? I didn't? Oh dear. I think I'm going to cry. Boo-hoo-hoo).

The best way to explain how the command table is set up is to give an example, so let's look at what is needed to create an RSX called |GIBBLE.

```
; Sets up simple an RSX called |GIBBLE.

txt_output equ &bb5a ;Routine to print character.
log_ext    equ &bcd1 ;The firmware call that introduces
                     ;an RSX to the system.
org &4000

ld bc,command_table  ;The details required by the
ld hl,buffer         ;firmware call.
call log_ext
ret                  ;Return to Basic

.buffer ds 4         ;Four bytes needed by system.

.command_table
dw name_table        ;The addresses of the name table.
jp gibblecode

.name_table
db "GIBBL","E"+&80   ;The RSX name.
db 0                 ;A special value to indicate the
                     ;the end of the name table.
.gibblecode
ld a,7
call txt_output      ;print chr$(7)
ld a,42
call txt_output      ;print chr$(42)
ret

end
```

Listing I: The code for | GIBBLE

Void filled

And what's wrong with |GIBBLE? |GIBBLE is going to fill that desperate need that every CPC owner has to make his or her computer go "Bleep" and print an asterisk. Yes, yes, I know, how did you manage without it. But be patient my little artichokes and remember: Large machine code programs from tiny minds do grow. For the moment, though, take a look at Listing I.

You can see that there are two tables. The first is the command table, which starts with the address of the name table, and continues with jump instructions to the machine code subroutines. In this case we only have the one subroutine, and so only one jump.

The name table is where the RSX names themselves are stored. The last character in each name must have its most significant bit (msb) set – that means that bit seven must be a 1 – and the easiest way to do this is to add 128 to the byte (or &80 in hexadecimal). All RSX names must be in capitals because Basic will automatically convert keyboard commands to upper case before processing them. The end of the name table is indicated by a single zero.

Four bytes are needed by the operating system for its own evil purposes, and so we give it a "buffer" to play with.

Recipe for success

Now it was at about this time in the article that I was going to give you a listing of Fiona's recipe for Sweet and Sour Pork. But she wouldn't tell me it, so I'll just have to make it up. Here goes...

```
org the_kitchen

.start ld bowl,sugar
       ld bowl,vinegar
       call prepare_pork
       add bowl,pork
       ld oven,(bowl)

.cook  peek (oven)
       cp cooked
       jp nz,cook

.eat   ld mouth,(pork)
       hmmm...

.prepare_pork ld (grill),pork
              add salt_and_pepper
              ret
```

You could try using rabbits instead of pork. If you want some rabbits, I know just where to get some... Ow! Stop hitting me, Fiona. I'll tell everyone you read Jeffrey Archer books... OK, I apologise for saying nasty things about your rabbits. Please remind me to buy you some socks sometime.

Of prunes and parameters

Back to RSXs, and you may be interested to know that in their infinite wisdoms the designers of Arnold's interior decided to allow the user to pass parameters to and from RSXs and Basic. In English, this means you can pass and receive numbers and strings to and from the machine code subroutines. Thus you could write a subroutine called |GIBBLETWO which requires a parameter after it to determine the number of asterisks to be printed out. To pass parameters you eat them with some prunes beforehand. Oops, sorry. No. To pass parameters with RSXs you put commas before them like this: |GIBBLETWO,42.

The number of parameters passed is stored in the A register, and the parameters themselves are stored around an address given in the IX register. If you want to be exact about it, IX points to the address of the last entry, so you have to read them backwards.

If you supply the address of Basic variables, by using the @ symbol before the variable name, you can get the machine code to return a value to Basic.

Listing II is an example of this. It takes two integers, adds them and places the result in a predefined Basic integer variable. Integer variables take up two bytes of ram, hence the four instructions needed to transfer their contents to machine registers – first the least significant byte, then the most significant byte.

```
10 p%=10
20 |GIBBLETHREE,@p%,100,200
30 PRINT p%
40 END
```

Listing III: Using | GIBBLETHREE from Basic

Listing III is a small Basic program that shows |GIBBLETHREE in operation, assuming it has been set up by assembling the code with the machine code assembler you bought. You did buy one, didn't you?

The integer variable *must* have previously been assigned a value (as in line 10), and if all goes to plan, rather amazingly the number 300 will be printed.

Green stuff

So anyway, there was my mate Green in the pub, and this very pretty girl came along and sat beside him.

"Hello", says the girl. "Hello", says Green, sipping his pint.

"I'm thirsty", says the girl. "Oh", says Green, "why don't you buy a drink then?"

"I'd like to", says the girl, "but I haven't any money".

"What a pity", says Green, "why don't you get your boyfriend to buy you one?"

"I haven't got a boyfriend either", she simpers. "What? A pretty girl like you doesn't have a boyfriend?"

"No. And I'm not that pretty really".

"Hmm. No, I suppose you're not". says Green, downs his pint and leaves.

There is a moral to this story. Pity I can't remember it.

Passing strings

String variables can be passed to the machine code subroutine in a similar way to integer variables. However, because strings tend not to be fixed in length, a third byte is needed to tell us how many characters are involved. As we use only one byte for this purpose, strings are limited to a maximum length of 255 characters – 255 being the largest number that one byte can hold. If you attempted to alter this length byte from within the subroutine, Basic would collapse in around you as it loses track of all its variables – a

```
; Machine code to set up an RSX called |GIBBLETHREE
; It adds integers sent to it. Wow.

txt_output equ &bb5a ;Routine to print character.
log_ext equ    &bcd1 ;Firmware call that introduces an
                     ;RSX the system.
org &4000

ld bc,command_table  ;The details required by the
ld hl,buffer         ;firmware call.
call log_ext
ret                  ;Return to Basic.

 buffer ds 4          ;Four bytes needed by system.

 .command_table
 dw name_table        ;The addresses of the name table.
 jp gibblemc

.name_table
db "GIBBLETHRE"
db "E"+&80          ;The RSX name.
db 0                 ;A special value to indicate the
                     ;the end of the name table.
.gibblemc
;
; RSX that takes (only) two integers
; adds them and returns them into a
; Basic variable. Heaven knows why.
;
cp 3                 ;Return to Basic if not three
jr nz,errortrap      ;parameters passed.
;
ld a,(ix+0)          ;Read the
ld l,a               ;second
ld a,(ix+1)          ;integer
ld h,a               ;parameter.
;
ld a,(ix+2)          ;Read the
ld e,a               ;first
ld a,(ix+3)          ;integer
ld d,a               ;parameter.
;
add hl,de            ;Do the addition.
;
ld a,(ix+4)          ;Get the address of
ld e,a               ;Basic p% variable
ld a,(ix+5)          ;into DE.
ld d,a
;
ld a,l               ;Poke the
ld (de),a            ;result into
inc de               ;the address
ld a,h               ;held in DE.
ld (de),a
ret
.errortrap
ld a,42              ;Print a * using my very
call txt_output      ;favourite firmware call.
ret
end
```

Listing II: The code for | GIBBLETHREE

nasty thing to happen to anyone, rather like being very drunk, I imagine.

A slightly useful subroutine would be one that encoded any Ascii string passed to it. The easiest way to do this would be to XOR each part of the string with a special code-letter or, better still, a series of code-letters. The way XOR works means that to decode the string you encode it again.

Listing IV sets up an RSX that will encode the string with a code word, here converted into its Ascii equivalent – the five numbers following the XORs. Once the string has been encoded it can be sent to disc or tape just like any other string – but if PRINTed to screen or printer will cause a terrible mess.

To decode the string, pass it through the routine once more and all will be back to normal. Listing V shows you how to use I ENCODE from Basic assuming, once again, that you have previously assembled and CALLed the machine code (use CALL &4000 to log the RSX on).

Such fun. You now have a genuinely useful RSX that will protect your Ascii files from prying pryers.

And so we come to the last programming example. The Basic function TIME returns the time in yonkettes of a second – useful for timing things like eggs or contractions – or rabbits (Ow!). However, Basic doesn't allow you to reset this timer, so it is necessary to use another Basic variable to keep track. But wait! Listing VI will set up an RSX called I ZEROTIME. I'll leave you to study it in peace...

Well, by now you should be getting to grips with RSXs. Adding them to your computer is nowhere near as painful as it may seem at first, and as you build up a library of the more useful routines, you will find your Basic programs become more and more adventurous.

An obvious thing for you to do would be to combine all the RSXs presented above into one program. All you need to do is to add the commands and names to the various tables, and then supply the code for each routine. Easy.

Happy birthday to me, Happy birthday to me, Happy birthday dear Auntie, Happy birthday to me. I'm old.

See you next time. Bye.

```
; Sets up simple an RSX called |ENCODE that
; when given a string returns a coded version.

log_ext equ &bcd1      ;Firmware call that introduces
                       ;an RSX to the system.
org &4000

ld bc,command_table    ;The details required by the
ld hl,buffer           ;firmware call.
call log_ext
ret                    ;Return to Basic.

buffer ds 4            ;Four bytes needed by system.

.command_table
dw name_table          ;The addresses of the name table.
jp encode

.name_table
db "ENCOD","E"+&80   ;The RSX name.
db 0                   ;A special value to indicate the
                       ;the end of the name table.
.encode
cp 1                   ;if not just one string present
ret nz                 ;we return to Basic immediately.
ld a,(ix+0)
ld l,a                 ;get the address of
ld a,(ix+1)            ;the string's "descriptor"
ld h,a                 ;into HL.
ld a,(hl)              ;The length of the string.
cp 0                   ;If the length is zero
ret z                  ;return to Basic
ld b,a                 ;Store length in B.
inc hl
ld a,(hl)              ;Low byte of string address.
ld e,a
inc hl
ld a,(hl)
ld d,a                 ;High byte of string address.
;
; Now the subroutine to encode/decode a string.
; DE contains the address of the string.
; B contains the length.
;
.loop
ld a,(de)
xor 70
xor 105
xor 111
xor 110                ;Extremely secret code word
xor 97                 ;(use your own, obviously).
ld (de),a
inc de
djnz loop              ;Repeat for entire length.
ret

end
```

Listing IV: Routine to encode a string

```
10 INPUT"Enter a string";a$
20 |ENCODE,@a$
30 PRINT"Encoded string = ";a$
40 PRINT"Press a key to decode..."
50 CALL &BB18 'wait for a keypress
60 |ENCODE,@a$
70 PRINT"Decoded string = ";a$
80 END
```

Listing V: Using I ENCODE from Basic

```
; Program to set up an RSX called |ZEROTIME
; that resets the internal timer.

set_timer equ &bd10  ;Firmware call that sets the timer.
log_ext   equ &bcd1  ;Firmware call that introduces
                     ;an RSX to the system.
org &4000

ld bc,command_table  ;The details required by the
ld hl,buffer         ;firmware call.
call log_ext
ret

buffer ds 4          ;Four bytes needed by system.

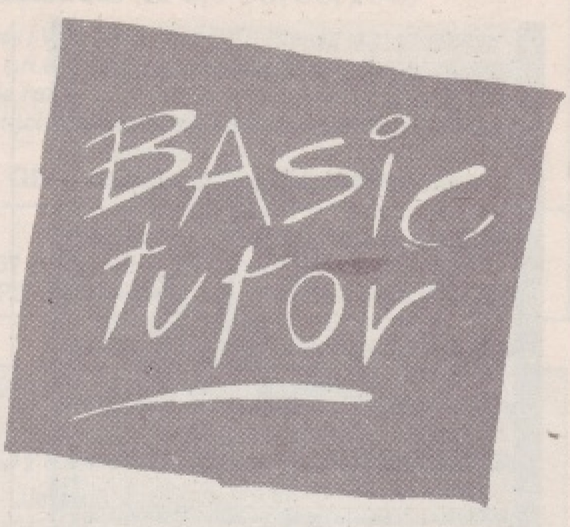
.command_table
dw name_table        ;The addresses of the name table.
jp timercode

.name_table
db "ZEROTIM","E"+&80 ;The RSX name.
db 0                 ;A special value to indicate the
                     ;the end of the name table.
.timercode
;
; A routine to reset the internal timer
; to zero. Did I mention my middle name
; is Terence?
;
ld hl,0
ld de,0
call set_timer
ret

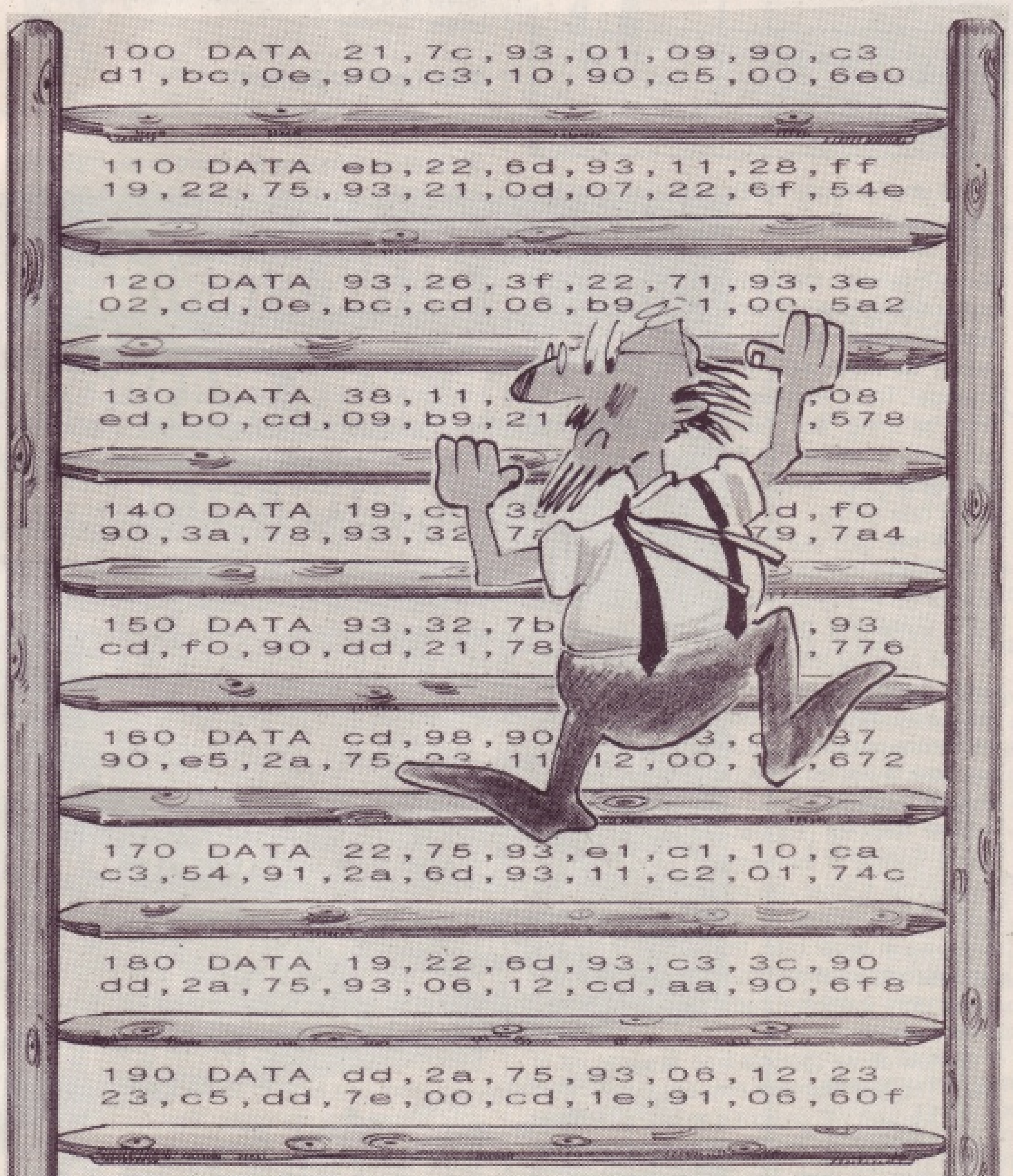
end
```

Listing VI: Routine to reset the internal timer

Comedy of errors



Jeff Walker guides you through the four most common data related error messages



THE READ...DATA structure works very much like the normal way of assigning values to variables. We can read string, integer or floating point data, but we must make sure that the variable we assign the data to is of the correct type. If not, those famous error messages can crop up. It is as well to learn about these error messages before experimenting with the READ...DATA structure.

Data exhausted

Contrary to popular opinion, *Data exhausted* does not mean Arnold has been chasing the data around the computer's memory until it has run out of puff. It means you've told Arnold to READ a certain amount of DATA – say eight bytes – and he can only find, say, seven of them. In other words, there is some data missing. Run this:

```
10 FOR byte=1 to 8:READ b:NEXT
20 DATA 93,33,54,91,21,69,93
```

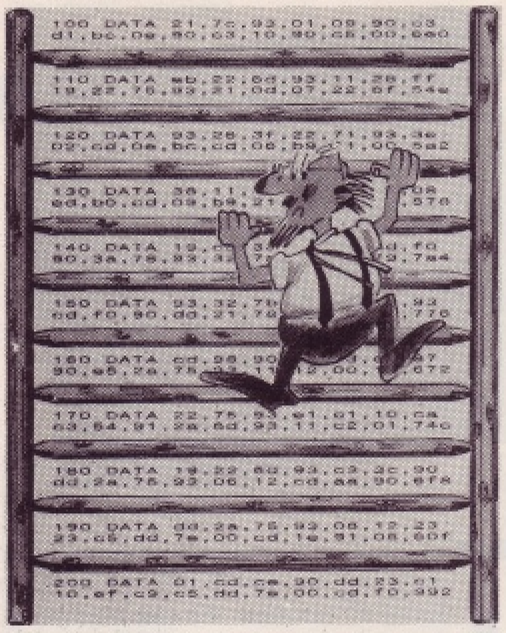
The temptation for the novice here is to alter the value of the FOR...NEXT index variable, *byte*, until the error message goes away. In many cases this will allow a program to continue for some time – but eventually weird things will happen until the computer crashes or stops with another error message.

If you get *Data exhausted in xxxx*, where *xxxx* is a line number, first check the FOR...NEXT loop index variable to ensure you are telling Arnold to read the correct amount of DATA. Line *xxxx* will be the line with the READ statement on; the FOR statement will be somewhere close to but before this READ statement.

If that checks out, then it means you haven't typed enough data in. In a list of say 1,000 bytes of data, it is very easy to miss one or two. It is also very easy to type a full stop instead of a comma between bytes of data. This, too, could cause a *Data exhausted* message:

```
10 FOR byte=1 to 8:READ b:NEXT
20 DATA 93,33,54,91.21,69,93,42
```

In the above example, the fourth and fifth bytes of data are being read as 91.21 – a single floating



point number – instead of 91 and 21 – two integers. So line 20 only contains seven bytes of data and you get a *Data exhausted* message. Stick a ":PRINT b" before the :NEXT in line 10, and the dodgy data will stick out a mile.

Syntax error

The strangest data-related error message is *Syntax error*. And I don't mean the syntax error you get by spelling the keyword DATA incorrectly. The syntax error I mean is the one caused by the READ statement disliking a piece of data it has been asked to read. Try this one:

```
10 FOR byte=1 TO 3
20 READ name$
30 READ age
40 NEXT
50 DATA Tom,32,Dick.24,Harry,22
```

Here we are reading employee's christian names followed by their ages. But we have fallen into the old trap – between Dick and 24 – of putting a full stop where a comma should be. So why do we get a *Syntax error* message?

Well let's follow the loop around. On the first pass we read the string data "Tom" into the string variable *name$* followed by the numerical data "32" into the numeric variable *age*. No problems there. But on the second pass we start by reading the string data "Dick.24" into the string variable *name$*. Again, there is nothing wrong with this – a string can contain any character or group of characters we like.

However, the erroneous full stop has thrown our structure out of sync because it and the value 24 have been appended to the "Dick" data. Thus the next thing we try to do is read the string data "Harry" into the numeric variable *age*. This causes the *Syntax error* message.

This is weird. Why is this weird? Well, this is weird because if you try to assign data to the wrong type of variable, the message you should get is *Type mismatch*. Try it. Type *age="Harry"* into your CPC and press Enter. See? This is what we call a bug and what Amstrad calls a feature.

Anyway, presuming the keyword DATA has been typed correctly, *Syntax error* in a DATA line always means we are attempting to read string data into a numeric variable. The error could be in the DATA line – a wayward full stop, or incorrect/missing data – or it could be in the READ statement where the dollar sign is missing from the string variable name. Got it? Good. Pass the aspirin.

Type mismatch

The infamous *Type mismatch* is by far the most common data related error message by a long, long way. The good news is that *Type mismatch* is closely related to one particular type of data – hexadecimal numbers.

Hex numbers are mostly used in DATA statements for machine code. These numbers consist of two characters, each of which can be a number in the range zero to nine, or a letter in the range A to F (upper or lower case – it amounts to the same number). Herein lies the problem. Tap the following in:

```
10 READ b$ ' <---------------- read it
20 b=VAL("&"+b$) ' <------- convert it
30 PRINT b ' <-------------- print it
30 DATA c9 ' <-------------------- it
```

This small program READs a hex digit from the DATA line into *b$*, a string variable. In line 20 the string variable is passed through the VAL function – a function that converts string data into numeric data. However, since the string data we want to convert is a hexadecimal number, the rule is we must prefix it with an ampersand character. That's what the *("&"+b$)* bit is doing. After the string "&c9" has been converted to a number it is assigned to the variable *b*. Line 30 displays the decimal value of the number, which in this case is 201.

With hex data like this, the *Type mismatch* error always happens in the VAL function. It is caused by mistyping the hex numbers in the DATA statements. The most common mistake is to type a capital letter O instead of the number zero. Change the byte in line 30 to read Oa – that's a big letter O and a little letter a – in place of c9. Run the program again. See? Now replace the bad letter O with the correct number zero and run it again. Good, isn't it.

Other favourite mistakes are typing a lower case L instead of the number 1, and the slash through the number zero sometimes causes it to look like the number 8. In fact, when the hex digits are in upper case, the number 8 and the letter B look incredibly similar, as well. Now you know why machine code hex listings are checksummed.

So how do we spot our typo in a long list of data? The *Type mismatch* message always refers to the line with VAL on, so it is no help at all. What we must do is use the program variables to do some detective work. The "Basic poker" part of the listing will look something like Figure I. The variable names may differ and it may contain more or less calculations, but more often than not you'll find two loops, one inside the other.

In Figure I we have *FOR lin=1000 TO 1500 STEP 10* in line 110, and *FOR byte=1 TO 8* in line 120.

```
100 MEMORY &9FFF:a=&A000
110 FOR lin=1000 TO 1500 STEP 10
120 csum=0:FOR byte=1 TO 8
130 READ a$:b=VAL("&"+a$)
140 csum=csum+b:POKE a,b:a=a+1:NEXT
150 READ sum:IF sum<>csum THEN 180 ELS
    E NEXT
160 CALL &A000:GOTO 200
170 '
180 PRINT"Csum error in line";lin:STOP
```

Figure I: Example Basic poker

When your program stops with *Type mismatch in xxxx*, these two loop index variables – *lin* and *byte* – will still be holding values. The variable *lin* will be holding the line number the program has got up to, and the variable *byte* will tell us which piece of data in that line the program last read. So, if you typed *PRINT lin,byte* and the two numbers 1230 and 6 were displayed, line 1230 byte 6 would be a good place to start looking for typing errors.

Improper argument

Of the error messages discussed so far, *Improper argument* is, on the whole, the easiest to correct. The *argument* is the value or values following a command. In *LOCATE x,y* the arguments are *x* and *y*. What Arnold is telling you is that the value of at least one of these arguments is such that it is impossible for him to do what you ask.

For example, if either *x* or *y* held the value zero, it would be an improper argument because there is no text position zero on the screen – the lowest position is 1.

Anyway, as usual a line number is reported along with *Improper argument*, and it is here that we must start our investigation. Study the line in question and PRINT all variables on that line to see if they are falling out of the range accepted by the preceding keyword. The LOCATE example above is a fairly common one, so is POKEing floating point values or values greater than 255 or less than zero.

Once we have discovered what the improper argument is, we can start looking for it in the DATA using the same techniques as for *Type mismatch* – you know, *PRINT lin,byte* or whatever the loop index variables are.

At the very least there will be one loop index variable, *byte* say, which may loop from 1 to 1,000 or more; in a case such as this you would *PRINT byte* and start counting from the beginning of the data in question. If the data happens to be in regular groups of 10 or 16, so much the better.

So there you have it, the four most common data related error messages. Now you know how to find the bugs, experimenting with the READ...DATA structure should pose no problems. Tarra.



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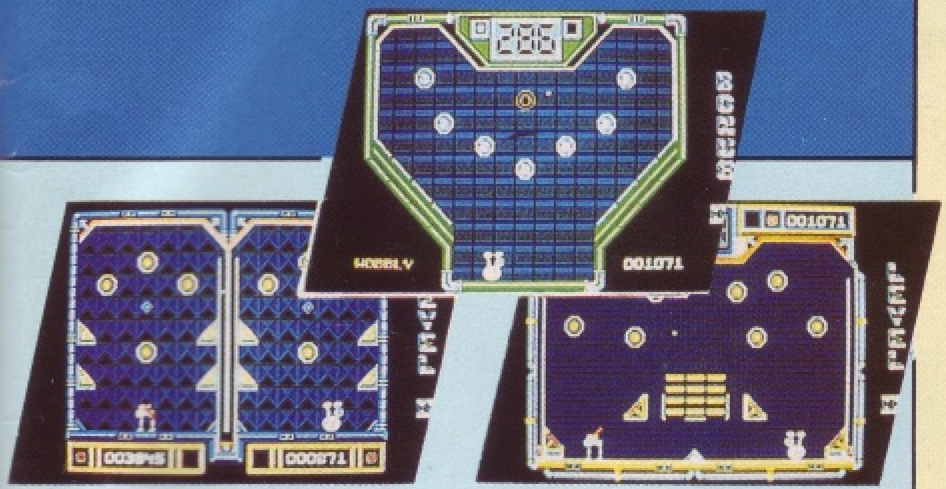
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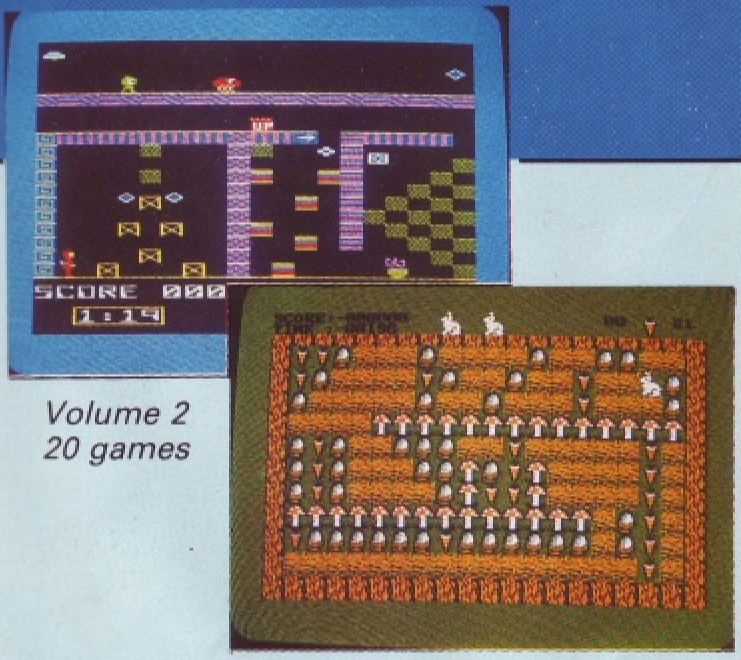
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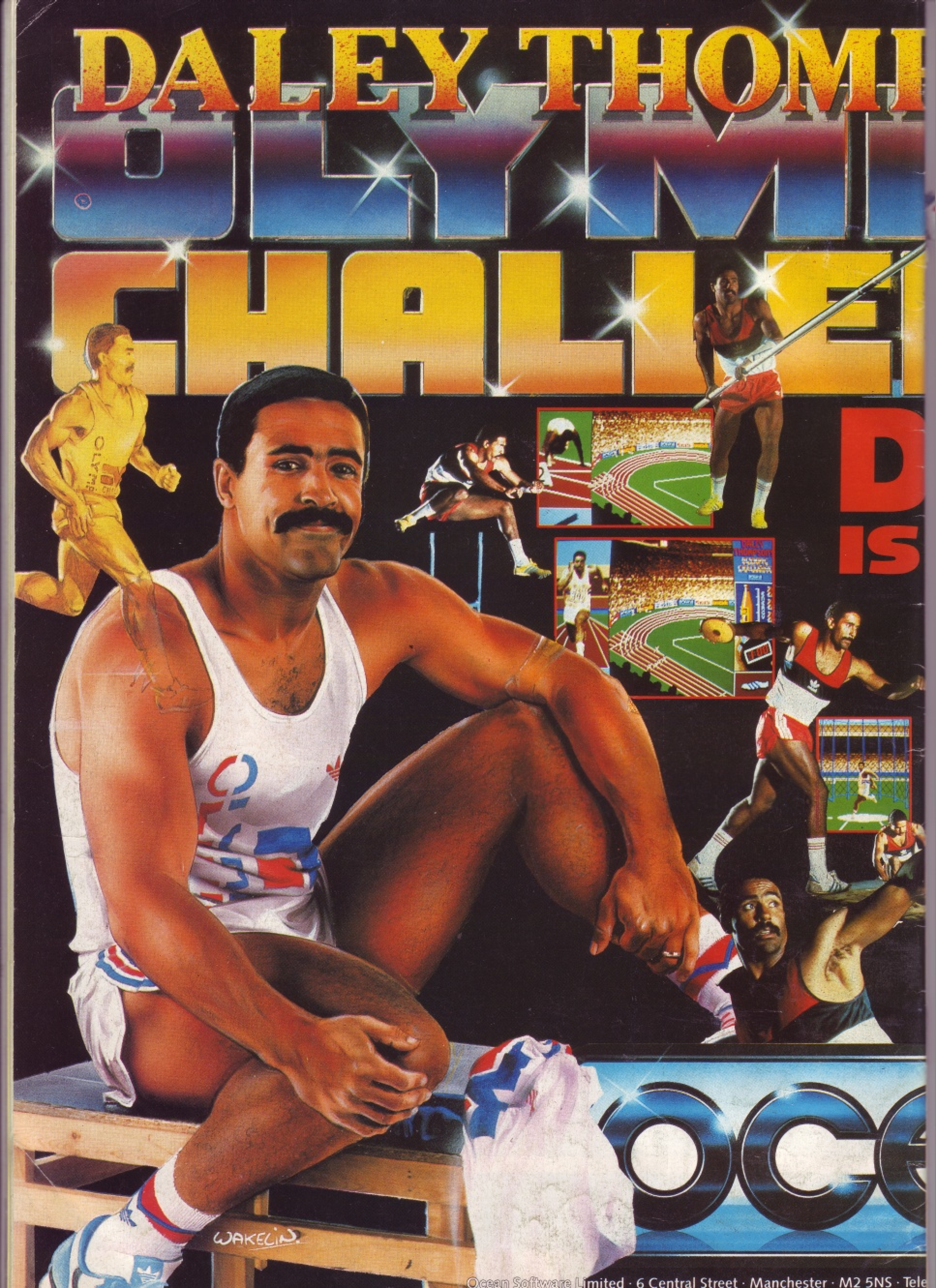
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